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Junior Mortgage Financing and Other Borrowing Against Inflated Housing Equity

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JUNIOR MORTGAGE FINANCING AND OTHER BORROWING AGAINST INFLATED HOUSING EQUITY

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Abstract

In recent years, rapid inflation in the market value of existing homes has generated huge amounts of housing equity that may serve as collateral for mortgage borrowing by homeowners. The proceeds from such borrowing may be used by individuals for a variety of purposes, including the purchase of real estate as well as the acquisition of other tangible or financial assets.

This paper examines the upsurge in mortgage borrowing by homeowners against their accumulated housing equity during the period 1975-77, considers the factors determining the demand for these funds, and provides information on the sources of supply. Section I discusses the developments that have generated the increased amounts of equity in the stock of housing, presents aggregate measures of the volume of mortgage funds raised by individuals against accumulated housing equity in recent years, and evaluates the relative importance of the ways by which individuals have been raising these mortgage funds. Section II evaluates the economics of borrowing against housing equity, considering both the logic of such borrowing for various purposes, and the relative costs of alternative ways of raising the mortgage funds--such as junior mortgages or refinanced first mortgages. Section III concentrates on the supply side of the market for junior mortgages, examining the junior mortgage lending powers of various types of institutions, lending restrictions posed by state usury ceilings, and other restrictions on the supply or use of junior mortgage funds.1/

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I. GENERATION OF HOUSING EQUITY AND BORROWING AGAINST ACCUMULATED EQUITY

Average prices of existing homes sold more than doubled between early 1970 and early 1978, reaching a level in excess of $50 thousand. Over the same period, the Consumer Price Index (all items) rose by considerably less, increasing on the order of 65 per cent. Moreover, the rate of increase in home prices has been quite persistent, despite significant slowing in the growth of prices of consumer goods and services since the peak rates of 1974. Indeed, in 1977, average prices of existing homes sold rose by nearly 14 per cent (Table 1).

The amounts of capital gains accrued by homeowners have, of course, varied widely in different parts of the country. As shown in Table 1, average prices of existing homes sold in the West have increased most rapidly; average sale prices in this region rose by about one-fourth in 1977. The slowest rates of price appreciation have been registered in the Northeast section of the country, where average sale prices increased by less than 7 per cent last year. Geographic differentials in home price movements have apparently been associated in large part with differing degrees of economic expansion in various parts of the country and with ongoing population shifts in favor of the West and the South.

The rapid inflation in the prices of existing homes, which has no doubt been spurred by expectations of further price appreciation, has boosted the market value of the housing stock to more than $1.5 trillion (Table 2). Due to this inflation, household equity in homes has risen sharply in recent years despite unprecedented rates of mortgage debt formation. Aggregate housing equity exceeded an estimated $900 billion at the end of 1977, providing a huge base for additional mortgage borrowing by homeowners. The volume of funds raised against equity is, of course, contingent upon the availability of mortgage credit.[2/]

Measurement of borrowing against housing equity. Individuals have been borrowing record amounts of funds against inflated housing equity in the past few years. A comprehensive measure of net funds raised by households against equity in existing homes can be constructed for the period since 1970. This measure equals total long-term home mortgage funds raised by households in a given period, less estimated amounts of mortgage funds raised for the purchase of new homes.[3/] The residual represents net borrowing by households, for whatever purpose, against previously existing housing collateral.

The existing-home component of household mortgage borrowing rose to a seasonally adjusted annual rate (SAAR) of more than $40 billion in the fourth quarter of 1977 (Chart 1). During the past two years, it has accounted for nearly half of total home mortgage debt formation--about double the proportion during the previous five years. In terms of volume, this component has actually exceeded the net increase in short- and intermediate-term consumer credit--instalment and noninstalment combined--during the current economic expansion, in sharp contrast to experience in earlier periods (Chart 2).

Ways of raising funds against housing equity. Individuals may raise funds against accumulated equity in the stock of housing in a variety of ways:[4] (1) by increasing the size of outstanding first mortgages by means of refinancing, (2) by raising additional funds through recourse to open-end provisions of outstanding first mortgages, (3) by taking out first mortgages on homes owned free and clear,[5] (4) by taking out junior mortgages on properties already securing first mortgages, or (5) through transactions in existing homes.

A large portion of the funds raised by the household sector against housing equity in recent years has apparently been generated through transactions in previously owned homes. As shown in Chart 3, unit sales of existing homes reached unprecedented levels by the end of 1977, and the dominance of existing-home transactions in the market has intensified in the past several years. Moreover, net credit use per existing-home transaction has increased as average prices of existing homes sold have risen markedly--by about 100 per cent since 1970--while average loan/price ratios on conventional first mortgages have been historically high.

Two general types of transactions can generate increases in mortgage debt secured by the stock of existing homes. In one case, owners of existing homes sell to and buy from other members of the homeowner group, and the new mortgages taken out by buyers exceed the outstanding mortgage debts of sellers; in this case, buyers as a group do not reinvest all the equity accrued in their previously owned homes, but opt for larger mortgage loans--perhaps as large as lenders will grant. In the second general case, owners of existing homes sell to new entrants to the homeowner group, and the mortgages incurred by the buyers exceed the remaining outstanding debts of the sellers. In this case, the sellers may either buy a new home or leave the homeowner group.

Press and trade reports have dramatized increases in junior mortgage and refinancing activity during the past two years. While it does not appear that junior mortgages or refinancings have been the major force behind the recent upsurge in total mortgage borrowing against equity in existing homes, it is clear that the volume of funds raised through these types of borrowing has been rising.

Junior mortgage activity has definitely increased during the past two years, particularly at commercial banks and finance companies. Some creditors are still averse to lending for junior mortgages because the value of the collateral may be uncertain in the event of foreclosure, but interest rates in excess of 10 per cent and favorable charge-off experience in recent periods[6/] have encouraged some institutions to invest in junior mortgages secured by growing home equities. From the homeowner's point of view, junior mortgages have become a more attractive borrowing vehicle, particularly in view of the general price inflation of recent years; these loans usually provide larger amounts of funds, at longer terms, than are available via consumer instalment credit. There are, however, a number of legal or regulatory constraints on the supply of funds to this market, including Federal or state restrictions on powers of various types of financial institutions to invest in junior mortgages, state-imposed ceilings on the maximum interest rates that may be charged on such loans, and state restrictions on junior mortgage lending for some purposes. These restrictions on supply are discussed in some detail in Section III.

Borrowing by homeowners through refinancing of outstanding first mortgages has apparently picked up somewhat in the past few years, although not so vigorously as junior mortgage borrowing. Refinancing activity is ordinarily constrained by the high cost of the loan transaction--for such items as property appraisal, title search, and recording of deeds and other documents. Refinancing activity has also been limited in recent periods because interest rates on new first mortgages have generally remained above rates on most outstanding loans made in periods other than 1974 and parts of 1975.[7]

A survey of consumer finances, conducted in September 1977, indicates that the proportions of households with junior mortgages or refinanced first mortgages are only marginally above those recorded early in the 1970's.[8] As indicated by participants in the survey, no more than 6 per cent of households with first mortgage debt also had a junior mortgage (Table 3). And 7 per cent reported having refinanced their first mortgages, at some time in the past, in order to raise additional funds.

The consumer survey data suggest that such activity has picked up somewhat in recent periods, particularly for junior mortgage borrowing. Junior mortgages ordinarily are intermediate-term loans, and about half of the number of such mortgages reported by the households in the survey had been originated since the beginning of 1976. Moreover, it appears from Table 3 that the bulk of recent junior mortgage financing has reflected borrowing against equity by homeowners, rather than the extension by home sellers of "purchase-money" mortgage credit to home buyers--a more important phenomenon in the past. While recent junior mortgage lending activity has been most pronounced on the West Coast, where home price increases have been most pronounced, increasing numbers of financial institutions in other parts of the country have been marketing junior mortgages on homes. Activity in the middle-Atlantic area (D.C., Maryland, Virginia) and in the Southeast has been relatively vigorous.

Surveys of commercial banks confirm the increase in junior mortgage activity indicated by the consumer survey data. The number of banks involved in junior mortgage financing has been growing rapidly over the past two years. For example, about half of a sample of 140 banks contacted in 1977 by the Consumer Bankers Association were offering junior mortgage loans to their retail customers, and nearly half of the remainder were seriously considering offering junior mortgage financing--in some cases to meet competitive pressures from other banks in their trade areas.[9] Some banks, of course, refer inquiries about junior mortgages to a nonbank subsidiary of their bank holding company; in some cases, the banks purchase the junior mortgages made by the nonbank subsidiaries.

II. THE ECONOMICS OF BORROWING AGAINST ACCUMULATED HOUSING EQUITY

It is clear that inflation in the market value of homes has provided individuals large amounts of collateral for mortgage borrowing. The amount of funds actually demanded in a given period will depend upon the level of mortgage rates and terms and the relative costs of the various types of credit available to households, as well as upon the rates of return available on various investment alternatives. This section discusses the economic bases for "monetizing" housing equity through borrowing, and considers the factors determining the relative attractiveness of the various ways of raising the mortgage funds.

The logic of monetizing housing equity through borrowing. Capital gains on homes provide collateral for borrowing at mortgage rates and terms available in the market--ordinarily more favorable than available on consumer credit. Under favorable credit market conditions, the availability of relatively low-cost mortgage credit may alter the terms of substitution between present and future consumption, as well as alter the form of a given level of consumption by changing the relationship between the cost of durable goods services and the market price of counterpart consumable services (by lowering the "rental rate" of durables).

Homeowners may raise funds against housing equity not only for the purchase of tangible assets, such as consumer durables and real estate, but also to increase the liquidity of their balance sheets through the acquisition of financial assets. The net costs and benefits of converting illiquid housing equity to liquid financial asset balances through mortgage borrowing will depend primarily on the spread between long- and short-term interest rates and on the prospects for income growth.

Borrowing against housing equity--particularly in connection with transactions in homes--and simultaneous acquisitions of financial assets need not imply non-economic behavior on the part of the household, even if mortgage rates paid are above yields on the assets acquired. In a world of uncertainty and imperfect capital markets, it is not necessarily economical to minimize debts by holding zero financial assets. Indeed, survey data reveal that a majority of households have debts and hold financial asset balances at the same time, even when borrowing costs are higher than yields on the financial assets.

The after-tax net interest cost of borrowing mortgage funds and investing these funds in financial assets may be approximated as:

$$(1-t)\,(m-i), \qquad (1)$$

where $\underline{t}$ is the individual's marginal income tax rate, $\underline{m}$ is the mortgage rate paid, and $\underline{i}$ is the yield on the financial assets acquired. This net after-tax interest cost may be compared by the household with the perceived opportunity cost of holding illiquid assets (equity in homes or consumer durables) in an uncertain world--an opportunity cost which varies directly with the probability of future financial difficulties. If the household balance sheet were highly illiquid, income shortfalls would have to be met by the sale of durable assets in highly imperfect capital markets, by borrowing at high interest rates (since the borrowing would be done when the consumer was in financial difficulty), or by a drop in consumption--none of which are attractive alternatives.

Relative costs of various ways of borrowing against accumulated housing equity. Individuals involved in selling homes on which they have accrued substantial capital gains may have the opportunity to raise large amounts of funds at relatively low costs. The marginal costs of borrowing against accumulated equity through new first mortgages for those households already engaged in selling and buying homes are typically quite low, per dollar raised, relative to the costs of other forms of household borrowing--including junior mortgage borrowing or refinancing for homeowners who have not moved. Transactions costs associated with new first mortgages will have been incurred by the homebuyers, regardless of the size of the mortgages received. Moreover, the relatively low interest rates on first mortgages--which averaged about 9 per cent during 1977--ordinarily are not highly sensitive to increases in loan/value ratios, except at high levels of this ratio. Available data suggest, for example, that the interest rate differential on new conventional first mortgages with 50 per cent and 75 per cent loan/price ratios typically is only about 10 basis points. Of course, such a rate differential would apply to the entire loan, not just to the incremental portion.

The effective marginal interest rate on mortgage funds raised against accumulated equity by an individual engaged in selling and buying homes may be calculated as:[10]

(2) $$r^{me} = r^{s} + \frac{(r^{a} - r^{s})L}{ME},$$

where:

r^a : rate on mortgage loan actually acquired for purchase of home.

r^s : rate available on mortgage loan with loan/value ratio corresponding to the case where all equity accumulated in previous home is reinvested in home purchased.

L : size of mortgage loan acquired for purchase of home.

ME : amount of equity in previous home that is "monetized" in process of selling and buying (accumulated equity in home sold less downpayment on home purchased).

Ordinarily, $L > ME > 0$, and r^a will vary directly with the size of ME. For example, assume that the buyer of a house priced at $100,000 has accumulated $50,000 equity in the home he is selling, and that mortgages for the purchase of the new home are available with interest rates of 9.00, 9.10, and 9.20 for loan/value ratios of 50, 70, and 80 per cent, respectively. Using formula (2), the effective marginal rate paid for funds raised against accumulated equity would be 9.35 per cent if $20,000 equity were monetized (choosing the 70 per cent loan/value ratio, rather than 50 per cent) and 9.53 per cent if $30,000 equity were monetized (choosing the 80 per cent loan/value ratio).

A homeowner not engaged in selling his home who wishes to borrow funds for some investment or consumption purpose has several major alternatives: (1) take out a consumer loan, either unsecured or secured by the consumer durables purchased; (2) take out a junior mortgage against accumulated equity in his home; (3) refinance an outstanding first mortgage, increasing the size of his first mortgage debt in the process; (4) take out a new first mortgage if there is no outstanding mortgage debt.

If the amount of funds sought is small, a consumer loan is an economical option. Large transactions costs on mortgage loans, particularly first mortgages, make mortgages relatively expensive for small loans, even when interest rates on consumer loans are higher. Moreover, for small loans, the monthly payments required on the relatively-short-maturity consumer loans may not be unduly burdensome relative to current income. Table 4 shows representative consumer loan rates and contract maturities for selected loan types at various institutions.

Mortgage loans are generally preferable to consumer loans when a homeowner wishes to borrow relatively large amounts of funds at intermediate- or long-term maturity. For homeowners with some outstanding mortgage debt, a choice must be made between junior mortgage borrowing and refinancing of outstanding first mortgages. The transactions costs for these two alternatives may differ greatly, since requirements of various lenders concerning title search, appraisal, credit reports, etc. can be quite different. It should also be noted that the transactions costs paid by borrowers are often smaller with second mortgages than with firsts, partly because some lenders promoting these loans absorb whatever closing costs are involved, planning to recoup these costs through interest income.[11/]

A summary of typical terms on junior mortgages made by a sample of commercial banks in 1977 is provided in Table 5. Generally, the junior mortgages offered by respondent banks to individuals were of large size--as compared with consumer loans--had intermediate-term maturities, and interest rates ranging between 10 and 15 per cent. Most banks write junior mortgages for no more than 80 per cent of the appraised value of the property, less any outstanding mortgages.

Refinancing outstanding first mortgages can, of course, be a relatively expensive way for households to raise additional funds when interest rates have been trending upward and balances on outstanding first mortgages are large. In terms of interest rates alone,[12] the relative attractiveness of rates on junior mortgages, J, and refinancings, R, can be calculated as follows:

$$J\text{-}R = (r_j - r_f^n) - (r_f^n - r_f^o)\frac{B}{A}, \qquad (3)$$

where:

A: additional funds to be raised through junior mortgage or refinancing.

B: balance on outstanding first mortgage.

r_j: rate on junior mortgage loan.

r_f^n: rate on new first mortgage loan.

r_f^o: rate on outstanding first mortgage loan.

Ordinarily, $r_j > r_f^n$. Moreover, when interest rates have been trending upward, it is likely tha $r_f^n > r_f^o$.

When the expression J-R in equation (3) is positive, the interest rate on a junior mortgage is high relative to the effective interest cost of raising additional mortgage funds by refinancing an outstanding first mortgage. Given the various rates of interest (r_j , r_f^n , r_f^o), the relative cost of junior mortgage financing will vary directly with the ratio B/A. For example, assume that the homeowner wants to raise an additional \$20,000 in mortgage credit, and that r_j = 12 per cent, r_f^n = 9 per cent, and r_f^o = 7 per cent. If the balance on the outstanding first mortgage were less than \$30,000, the junior mortgage would be the more expensive option. Otherwise, refinancing would be relatively expensive.

III. SOURCES OF JUNIOR MORTGAGE FUNDS AND CONSTRAINTS ON LENDING

As discussed in the previous section, junior mortgages may be the most economical way for households not engaged in selling homes to liquify their accumulated housing equity through borrowing, particularly when interest rates have been trending upward and the balances on outstanding first mortgages are large. As indicated below, a wide variety of financial institutions has traditionally invested in junior mortgages to some degree.[13] Moreover, the junior mortgage lending powers of Federally-chartered depository institutions have been expanded in recent years, and restrictions on junior mortgage lending by state-chartered depository institutions and finance companies have been eased in many areas. At the same time, approximately half the states in 1977 still prohibited certain institutions from making loans secured primarily by junior liens on homes, and restrictions on household use of funds as well as on maximum interest rates, loan sizes and/or loan maturities can limit junior mortgage lending even where permitted by law.

Junior mortgage lending by financial institutions

Data on amounts of junior mortgages are not collected regularly by trade associations, Federal Credit agencies, or Federal and state regulatory agencies.[14/] Fragmentary data from 1971 and 1975 indicate that a variety of financial institutions has traditionally engaged in junior mortgage lending (Table 6), and data from the September 1977 survey of consumer finances confirm this fact. There are, however, a number of legal and regulatory constraints on the supply of funds to this market. The various types of institutions that make junior mortgages have differing degrees of lending power, as defined by Federal or state regulations. While there has been a definite trend toward broader lending powers, significant constraints still exist for some types of institutions.

National banks. Until August 1974, National banks were permitted to make junior mortgages only in "abundance of caution" situations--the loans were to be based primarily on the credit worthiness of the borrower rather than on the value of the collateral.[15/] Currently, National banks may invest in loans secured primarily by junior liens on homes, and their holdings may amount to as much as 10 per cent of the maximum amount National banks are permitted to invest in conventional real estate loans; in practice, this maximum is usually equal to the bank's time and savings deposits. Moreover, there are no restrictions on the use of funds by borrowers.

Federal S&Ls. Until mid-1975, Federally-chartered savings and loan associations could acquire junior mortgages only if they also held the first mortgages on the same properties.[16] Currently, Federal S&Ls may invest from 2 to 5 per cent of total assets in junior mortgage in cases where they do not hold the first mortgages.[17] There are no regulatory restrictions on the use of funds by borrowers.

Federal credit unions. Until recently, Federally-chartered credit unions were permitted to make first or junior home mortgages with maturities of up to 10 years, with no per cent-of-asset or use-of-funds restrictions. Regulations effective in May 1978 permit Federal credit unions to make first mortgages with maturities of up to 30 years and junior mortgages with maturities of up to 12 years.[18] There are no per cent-of-asset, use-of-funds, or loan-to-value ratio restrictions on junior mortgage lending under the revised regulations. However, interest rates on such loans may not exceed 1 per cent per month, inclusive of all prepaid interest, processing fees and other service charges.

State-chartered depository institutions. The junior mortgage powers of state-chartered depository institutions vary from state to state, and are often different for types of institutions within a state. Table 7 provides a summary of current state regulations. Some of the highlights are as follows:

-- Commercial banks. Restrictions on junior mortgage lending by state-chartered commercial banks have been eased in some areas in recent years; for example, in Colorado and Nevada, state-chartered banks have recently been provided the same powers as National banks. While no state specifically prohibits state-chartered banks from making junior mortgages, such banks are currently prohibited from making loans secured primarily by junior liens on real estate in one-third of the states. Most states that permit their banks to take junior mortgages as primary or secondary collateral place some restrictions on loan size, maturity, proportion of property value that may be mortgaged, and/or proportion of bank portfolio that may be invested in such assets. In a few states, the banks may make junior mortgages only for the purpose of home improvement.

-- Savings and loans. About a dozen states prohibit state-chartered S&Ls from making loans secured primarily by junior liens, and in about 25 states such institutions may make junior mortgages only if they also hold the first mortgage. Nine states allow their S&Ls to make loans secured primarily by second mortgages only if the proceeds of the loan are to be used for home improvement.

-- Mutual savings banks. Twelve of the 17 states with mutual savings banks permit these institutions to make loans secured primarily by junior liens on real estate. However, in four of these states the institution may make a junior mortgage loan only if it also holds the first mortgage.

-- Credit unions. Only 2 states specifically prohibit state-chartered credit unions from making junior mortgages, and there have been some recent adjustments to state statutes in order to specifically authorize junior mortgage lending; such provisions were enacted in Florida and Massachusetts in 1977. Still, in 19 states the credit union statutes are silent as to mortgage loans of any type, and in an additional 11 states the statutes authorize first mortgage loans but are silent as to junior mortgages. Thus, in these 30 states the junior mortgage lending powers of state-chartered credit unions are unclear.

Finance companies. Finance companies in 38 states are permitted to make loans secured by real estate (Table 8). However, trade sources indicate that restrictions on loan size and/or maximum maturity render most junior mortgage loans unprofitable, relative to unsecured personal loans, in 7 of these states--Arizona, Florida, Georgia, Nebraska, New Mexico, North Dakota, and Washington. In only one state--Missouri--are finance company junior mortgages restricted in terms of purpose; in this state, the proceeds of the loan may not be used for home improvement.[19/]

Mortgage companies. Mortgage company lending activities are not regulated in any formal way, and these companies may make junior mortgages without lending restrictions.[20/] However, mortgage companies ordinarily sell the mortgage loans they originate. Since junior mortgages are of limited marketability, mortgage banker participation in this market is rather limited; according to data from the Mortgage Bankers Association, junior mortgages have been accounting for less than half of one per cent of total loans closed by mortgage companies in recent years. In some cases, of course, the mortgage company subsidiary of a bank holding company will retain the loans it makes.

State ceilings on junior mortgage interest rates

State-imposed interest ceilings may make junior mortgage lending unprofitable for some lenders.[21/] Moreover, different types of institutions may be subject to different rate ceilings in a given state. Maximum interest rates permitted under state consumer loan laws ordinarily pose no serious constraints to finance company junior mortgage lending in states permitting these institutions to make loans secured by real estate (see Table 8). However, junior mortgage lending by other types of institutions may be constrained by interest rate ceilings.

Table 9 provides a summary of state rate ceilings on junior mortgage loans made by institutions other than finance companies. Only 12 states and the District of Columbia have established special ceilings for junior mortgages, permitting annual percentage rates ranging from 11-1/2 per cent to 18 per cent.[22/] In the 7 states that have adopted the Uniform Consumer Credit Code--Colorado, Idaho, Indiana, Kansas, Oklahoma, Utah and Wyoming--depository institutions are subject to the same interest rate ceilings as finance companies. These ceilings are high enough to pose few constraints on junior mortgage lending.

The applicable law is unfavorable or unclear in many of the remaining 31 states. In some states, institutions must make junior mortgages under the same rate ceilings that apply to first mortgages. There are 18 states without either junior mortgage statutes or UCCC provisions, where ceilings on mortgage rates are set at 10 per cent or less, and these maximums may render junior mortgage lending unprofitable. In New York, for example, all loans to individuals secured primarily by real estate are subject to a ceiling of 8.5 per cent.

In a number of states, the regulatory situation is quite uncertain, since it is not clear which statute applies to junior mortgages. In Pennsylvania, for example, there is no special second mortgage ceiling, and it is not clear whether junior mortgages should fall under the consumer loan limit (12 per cent) or the first mortgage limit (a floating ceiling tied to a long-term Treasury bond rate). In such situations, lenders have become reluctant to grant junior mortgages at the consumer loan limit, while lending at the first mortgage ceiling may not be economically feasible.

State constitutional restrictions

State constitutions may contain provisions affecting junior mortgage lending by all types of investors in a state. In Texas, a Homestead Law specifies that junior mortgage loans secured by homes may not be made by an institution or individual unless the purpose of the loan is home improvement or the payment of taxes. This is apparently the only state with such an overriding constraint on junior mortgage lending.

TABLE 1

AVERAGE SALES PRICES OF EXISTING SINGLE-FAMILY
HOMES FOR THE UNITED STATES AND EACH REGION

			Standard Census Regions							
	United States		Northeast		North Central		South		West	
Year	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean
1968	$20,100	$22,300	$21,400	$24,200	$18,200	$19,900	$19,000	$22,000	$22,900	$25,200
1969	21,800	23,700	23,700	26,600	19,000	21,100	20,300	23,500	23,900	26,700
1970	23,000	25,700	25,200	28,400	20,100	22,600	22,200	25,300	24,300	27,400
1971	24,800	28,999	27,100	30,600	22,100	24,300	24,300	27,800	26,500	29,700
1972	26,700	30,100	29,800	33,600	23,900	25,700	26,400	30,100	28,400	32,300
1973	28,900	32,900	32,800	36,800	25,300	28,100	29,000	33,200	31,000	35,400
1974	32,000	35,800	35,800	39,700	27,700	30,600	32,300	36,200	34,800	39,000
1975	35,300	39,000	39,300	43,600	30,100	33,100	34,800	38,800	39,600	44,100
1976	38,100	42,200	41,800	45,900	32,900	35,900	36,500	40,900	46,100	50,300
1977	42,900	47,900	44,400	49,100	36,700	40,200	39,800	45,000	57,300	63,200

Source: National Association of Realtors, Monthly Report, "Existing Home Sales."

TABLE 2

HOUSEHOLD EQUITY IN HOMES
(Amounts in billions of dollars)

End of Year	Value of Housing Stock Owned by Households 1/ (1)	Home Mortgage Debt Owed by Households 2/ (2)	Household Equity in Homes (Col.(1) - Col.(2)) (3)
1970	767.5	292.7	474.8
1971	807.5	321.0	486.5
1972	907.9	360.9	547.0
1973	1,035.4	402.2	633.2
1974	1,168.7	436.8	731.9
1975	1,265.0	477.4	787.6
1976	1,370.0	543.5	826.5
1977	1,562.5	628.3	934.2

1/ Owner-occupied dwellings in both single family and multifamily structures, including estimates of improved land. Mobile homes are excluded.

2/ First and junior mortgage debt secured by 1- to 4-family properties, excluding construction loans. Mortgages on condominium units in multifamily structures are included.

SOURCES: MIT-PENN-SSRC model, Flow of Funds Accounts, HUD.

TABLE 3

JUNIOR MORTGAGE BORROWING AND REFINANCING ACTIVITY BY HOUSEHOLDS

(numbers of respondents)

All respondents	2563
With first mortgages	1035
With junior mortgages	64
With refinanced first mortgages	82

Junior Mortgages

Primary use of junior mortgage funds	
Downpayment on primary or second home	11
Home improvement or repair	13
Remodel or add to house	10
Pay bills, taxes, medical and education expenses	11
Buy appliances	2
Other[1]	17

Refinancing of First Mortgages

Refinanced primarily to obtain lower interest rate or longer maturity	11
Refinanced primarily to raise additional funds	71
Primary use of additional funds	
Downpayment or purchase of second home	6
Home improvement or repair	15
Remodel or add to house	19
Pay bills, taxes, medical and education expenses	13
All other[2]	18

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[1] Includes 6 cases where the primary use of funds was not ascertained.

[2] Includes 1 case where the primary use of funds was not ascertained.

Source: 1977 Consumer Credit Survey conducted by the University of Michigan's Survey Research Center on behalf of the Federal Reserve Board, the Federal Deposit Insurance Corporation, and the Comptroller of the Currency.

TABLE 4

RATES AND TERMS ON CONSUMER LOANS MADE BY COMMERCIAL BANKS AND FINANCE COMPANIES
Year-end 1977

Commercial Banks

Most common rate charged on consumer instalment loans:

New Automobiles (36 months)	10.91%
Mobile Homes (84 months)	11.95%
Other Consumer Goods (24 months)	13.05%
Personal Loans (12 Months)	13.60%
Credit Card Plans	16.91%

Finance Companies

Average Values	New Automobiles	Mobile Homes	Other Consumer Goods	Personal Loans
Finance rate	13.21%	13.54%	19.64%	20.68%
Maturity	41.4 mo.	129.0 mo.	25.7 mo.	42.8 mo.
Amount financed	$5,343	$9,586	$636	$1,493

Source: Federal Reserve statistical releases E.10, G.26, and G.10.

TABLE 5

TYPICAL TERMS OFFERED BY BANKS ON JUNIOR MORTGAGE LOANS TO INDIVIDUALS
1977

	High	Low	Average
Amount financed	$ 80,000	$ 4,000	$ 14,757
Per cent of appraised value	100%	20%	79%
Maturity	15 yrs.	5 yrs.	9 yrs.
Interest rate	15%	6%	11.63%
Total closing costs	$850	$16	$ 138.55

Source: The Consumer Bankers Association.

TABLE 6

JUNIOR MORTGAGE DEBT ON 1- TO 4-FAMILY PROPERTIES HELD BY SELECTED INSTITUTIONS

(Amounts in millions of dollars)

Type of Holder	Mid-1971[1]	Mid-1975[2]
Savings and Loans	476	NA
Commercial Banks	547	NA
Mortgage Companies	289	NA
Mutual Savings Banks	90	NA
Life Insurance Companies	30	NA
Finance Companies	NA	1,946
Credit Unions	NA	370

---

[1] Based on the 1971 Census Bureau Survey of Residential Finances.

[2] Based on the 1975 Federal Reserve Survey of Finance Companies, and the 1975 Credit Union National Association Mortgage Lending Survey.

NA--not available.

TABLE 7

POWERS OF STATE-CHARTERED DEPOSITORY INSTITUTIONS TO MAKE JUNIOR MORTGAGES SECURED BY HOMES

State	Commercial Banks	Mutual Savings Banks	Savings and Loans	Credit Unions
Alabama	A,F,Q		A,E	D
Alaska	A,I	A,E,I		
Arizona	A,F,G		A,F,G	A
Arkansas	A,F		A	C
California	A,F		A,J	B
Colorado	A,H,Q		A,E,I	D
Connecticut	A,I,J	A,F	A,F,J	B
Delaware	A,I	A,I	A,I	
Florida	A,I		A,F,G,Q	A
Georgia	A,F		A,Q	D
Hawaii	A,F		A,F	C
Idaho	A		A,G,J	A
Illinois	A,I,Q		A,F,G	B
Indiana	A,F	A,F	A,F	P
Iowa	A		A	P
Kansas	A		A,E	B
Kentucky	R		A,G	C
Louisiana	A		A,G	C
Maine	A	A	A	C
Maryland	A,I	A	A,E,I	C
Massachusetts	A	A	A	A
Michigan	A,G,I		A,G,I	D
Minnesota	A,F,Q	A,E	A,F	C
Mississippi	A		A,E	D
Missouri	A		A,E	D
Montana	A,E		A,E	D
Nebraska	A		A,E	D
Nevada	A,H		A,E	D
New Hampshire	A,F	A,F	A,F	B
New Jersey	A,E,F,Q	A,E,F,Q	A,E,F,Q	D
New Mexico	A,I		A,E,F	D
New York	A	A	A	B
North Carolina	A		A,E	D
North Dakota	A,F		A,F	B
Ohio	A,E,F		A	C

TABLE 7 (cont'd)

POWERS OF STATE-CHARTERED DEPOSITORY INSTITUTIONS TO MAKE JUNIOR MORTGAGES SECURED BY HOMES

State	Commercial Banks	Mutual Savings Banks	Savings and Loans	Credit Unions
Oklahoma	A,F,I		A,E,G	D
Oregon	A	A	A,E	D
Pennsylvania	A,E	A,E	A,E	C
Rhode Island	A,E,G,I	A,E,G,I	A,E,G,I	B
South Carolina	A		A,E	B
South Dakota	A,E,F		A,E	
Tennessee	A		A,E	D
Texas	A,E,F		A,E,F	C
Utah	A		A,E	D
Vermont	C,Q	C,Q	C,Q	D
Virginia	A		A,E	D
Washington	A,F	A,F	A,E,I	C
West Virginia	A		A	D
Wisconsin	A	A	A,E	B
Wyoming	A,F		A,F	

NOTE: Blank cells indicate that the state has no state-chartered depository institutions of that type.

Legend for Table 7

A. Law specifically authorizes junior mortgages.

B. Law authorizes real estate loans generally, and does not limit to first mortgage loans.

C. Law specifically authorizes first mortgage loans, but is silent as to junior mortgage loans.

D. Law silent as to mortgage loans of any type.

E. May hold junior mortgage only if also hold the first.

F. Junior mortgage may not be primary security for loan; may take only as excess collateral; may grant only in "abundance of caution" situtations; my grant only to cover "debts previously classified;" etc.

G. Junior mortgages may be primary security only if used for home improvements.

H. Has same junior mortgage powers as National banks.

I. Sum of first and junior mortgages cannot exceed specified percentage of appraised value.

J. Junior mortgages may not exceed specified percentage of total assets, or capital plus surplus.

P. Law specifically prohibits second mortgage loans.

Q. Regulatory agency discourages junior mortgage lending.

R. Cannot also hold first mortgage; first mortgages granted in state include clause allowing extensions to be made for home improvements.

NOTE: Information obtained through an informal Federal Reserve staff survey of the appropriate state regulator commissions, and from the Nation Credit Union Administration.

TABLE 8

STATES PERMITTING FINANCE COMPANY LOANS SECURED BY REAL ESTATE

State	Maximum Loan Size	Maximum Maturity
Alabama	None	None over $1,000
Arizona	$2,500	36-1/2 Months
California	None	84-1/2 Months to $10,000; none over $10,000
Colorado	None	None over $1,000
Connecticut	$5,000	None over $1,800
Delaware	10% Net Worth of Lender	84 Months
Florida	$2,500	36-1/2 Months
Georgia	$3,000	36-1/2 Months
Hawaii	None	72 Months
Idaho	None	None over $1,600
Illinois	$10,000	121 Months
Indiana	None	None over $1,300
Iowa	20% Net Worth of Lender	None over $1,000
Kansas	None	None over $1,000
Kentucky	$7,500	61 Months
Louisiana	$25,000	None over $1,000
Maryland	$6,000	72-1/2 Months
Massachusetts	None	None
Mississippi	None	None
Missouri	None	None
Montana	$7,500	None over $2,500
Nebraska	$3,000	36 Months
New Hampshire	None	None
New Jersey	None	None
New Mexico	$2,500	None
North Carolina	$7,500	None
North Dakato	$2,500	None
Ohio	$15,000	60 Months
Oklahoma	None	None over $1,000
Oregon	$50,000	None
Pennsylvania	$5,000	60-1/2 Months
Rhode Island	None	None
South Carolina	None	None over $1,000
Utah	None	None over $1,600
Virginia	None	None
Washington	2% of Capital of Lender	24 Months
Wisconsin	None	None over $3,000
Wyoming	None	None over $1,000

Source: Household Finance Corporation.

TABLE 9

STATE INTEREST RATE CEILINGS ON JUNIOR MORTGAGE LOANS TO INDIVIDUALS

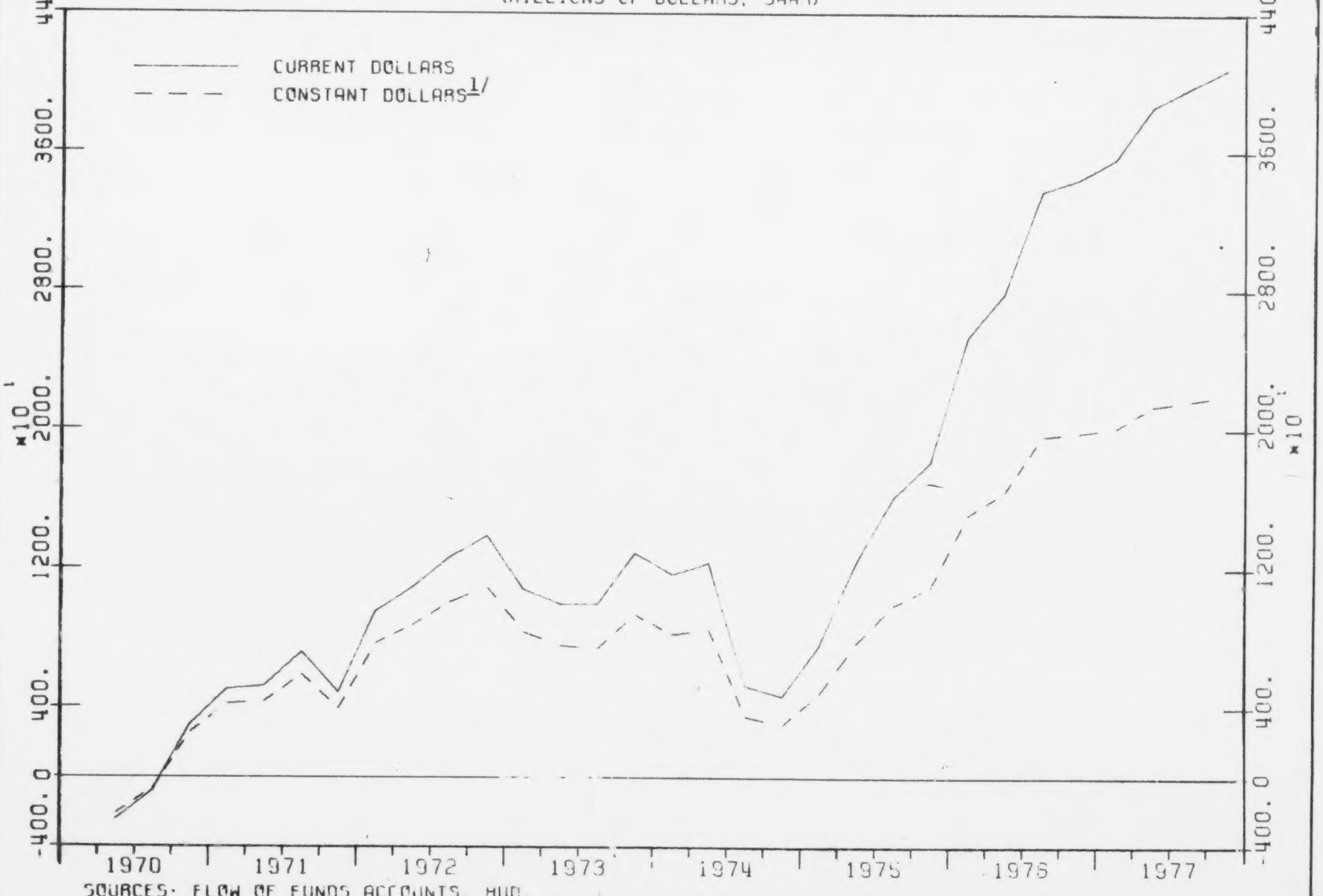
State	Rate Ceiling	State	Rate Ceiling
Delaware	14%	Ohio	8%
Georgia	6	Rhode Island	15
Maryland	12	Texas	8
Massachusetts	18	Virginia	8
New Hampshire	18	West Virginia	6
New Jersey	15	D. C.	11½
North Carolina	12		

NOTE: Ceilings are defined in terms of actuarial rates, except for:
(a) Georgia, North Dakota, Texas, Virginia, West Virginia--add-on-rates;
(b) Delaware and Maryland--constant-ratio rates. The statutes generally define and limit fees for items such as credit reports, appraisal, title examination, etc.

Source: Financial Publishing Company, The Cost of Personal Borrowing in the United States.

CHART 1

NET INCREASE IN MORTGAGE DEBT ON STOCK OF EXISTING HOMES
(MILLIONS OF DOLLARS, SAAR)



SOURCES: FLOW OF FUNDS ACCOUNTS, HUD.

1/ CONSTANT DOLLAR SERIES DEFLATED BY THE CPI (ALL ITEMS), 1967=100.

CHART 2

NET INCREASE IN EXISTING-HOME MORTGAGE CREDIT AND CONSUMER CREDIT

(BILLIONS OF DOLLARS, SAAR)

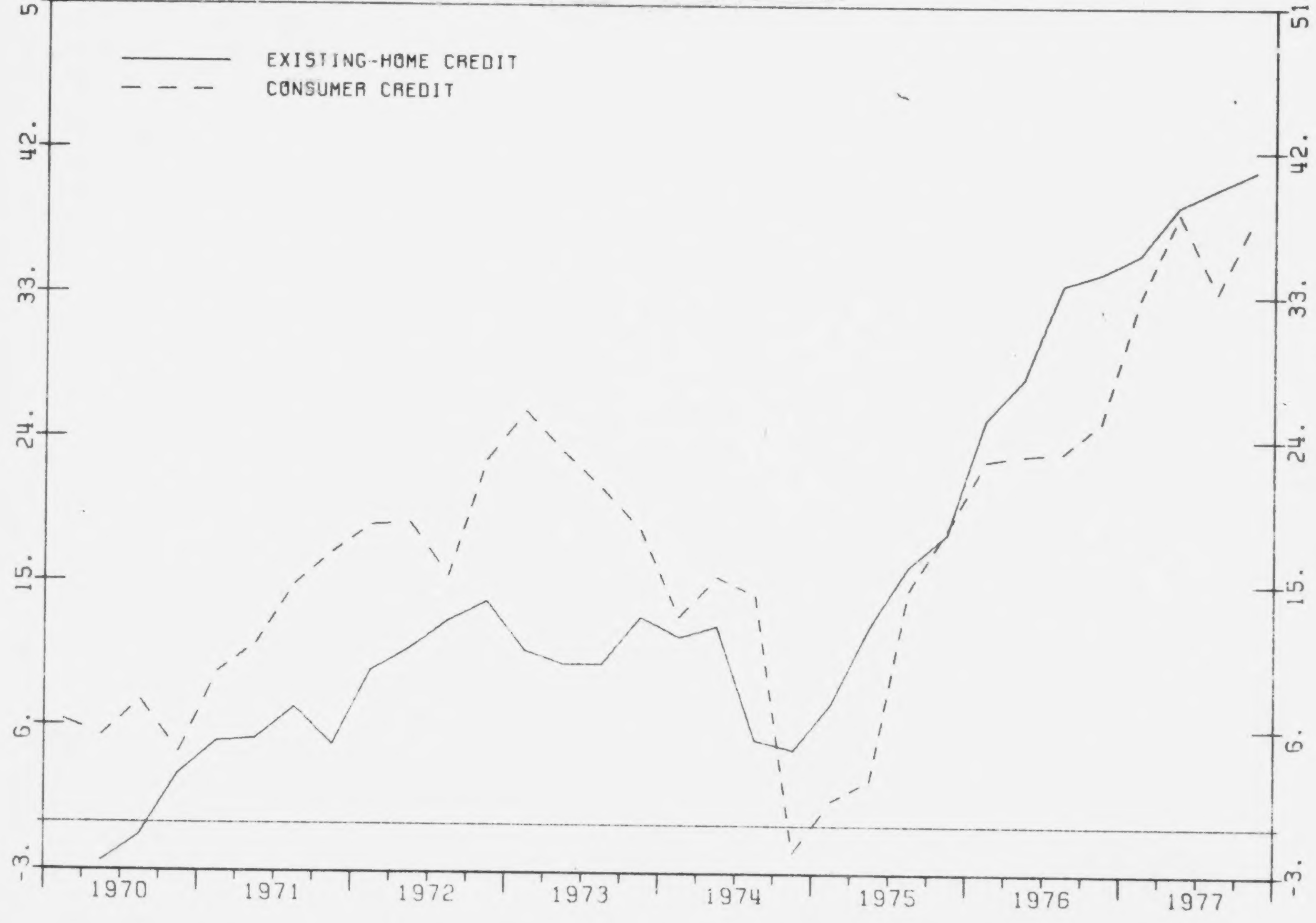
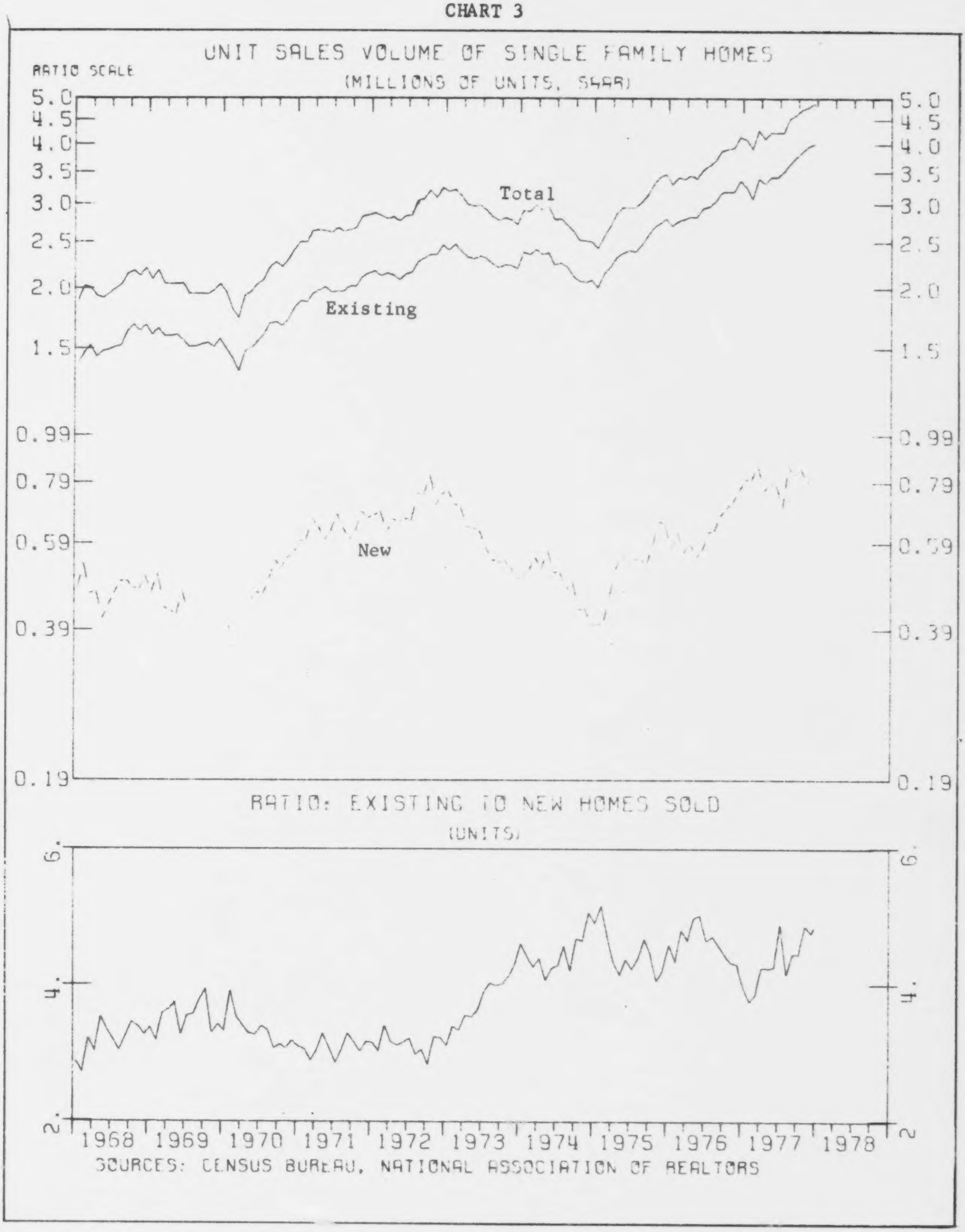


CHART 3



SOURCES: CENSUS BUREAU, NATIONAL ASSOCIATION OF REALTORS

FOOTNOTES

[1] Attempts have been made by Sommers and Rhine [5], and by Gelb [1], to measure home mortgage borrowing for non-real estate purposes, and Meltzer [2] has stressed that mortgage loans may finance acquisitions of financial assets and real assets other than houses and that mortgage borrowing may substitute for other types of borrowing. An analysis of the implications of the recent upsurge in borrowing against housing equity for aggregate economic activity, and the outlook for the volume of such borrowing, has been provided in [3].

[2] The generation of capital gains on housing provides collateral for borrowing at mortgage rates and terms available in the market--ordinarily more favorable than available on consumer credit--but does not necessarily provide households with increases in purchasing power. This point is discussed further in [3].

[3] This series, based on originations of new-home mortgages, cannot be estimated prior to 1970 since aggregate data on originations are not available for earlier periods. The estimated series could be sharpened a bit by allowing for amortization of new-home mortgages within the period of origination. However, even when quarterly data are used, the amounts are small--about 0.25 per cent of originations, given current market interest rates and loan maturities.

[4] Principal balances may rise on outstanding reverse-annuity mortgages, or on graduated-payment mortgages with negative amortization in their early years, but the amounts involved in these non-standard mortgage arrangements are as yet unimportant.

[5] According to HUD's Annual Housing Survey, about 30 per cent of all "specified" owner-occupied housing units (1-family homes on less than 10 acres and no business on property) were free of mortgage debt in 1976.

[6] Scattered data from finance companies, credit unions, and commercial banks indicate that delinquency rates on junior mortgages have been quite low in recent years, in comparison with delinquencies on consumer instalment credit. Moreover, delinquency rates on first mortgages at major holders rose only slightly in the recent recession, and foreclosure rates have changed little during the past 5 years.

[7] A way of calculating the effective interest rate on additional funds raised by refinancing an outstanding first mortgage is presented in Section III.

[8] Data for 1970-71 are from the Census Survey of Residential Finances, which excluded coverage of finance companies and credit unions.

[9] The CBA membership includes a disproportionate number of small banks. However, informal Federal Reserve surveys of large commercial banks confirm the increasing participation of banks generally in the junior mortgage market.

[10] The following discussion assumes that interest rates on mortgages are fixed over the lives of the contracts.

[11] This is possible, of course, only when state interest-rate ceilings are not binding.

[12] That is, abstracting from transactions costs and nonrate loan terms.

[13] Some junior mortgages are also acquired by households, particularly during periods of tight money; homeowners who sell their houses subject to the assumption by the buyer of the outstanding first mortgage may take back a second "purchase-money mortgage" as partial payment. This type of junior mortgage financing is not discussed in this section.

[14] The Comptroller of the Currency conducted special surveys of junior mortgage lending by National banks in connection with the September 30, 1977 and December 31, 1977 Reports of Condition. Preliminary results from the September survey indicate that about 3 per cent of the amount of 1- to 4-family mortgages held by National banks were secured by junior liens.

[15] The expansion of the junior mortgage lending powers of National banks was provided by the Housing and Community Development Act of 1974, signed into law on August 22, 1974.

[16] The Housing and Community Development Act of 1974 authorized the Federal Home Loan Bank Board to revise the regulations concerning junior mortgage lending by Federal S&L's. The revised regulations were issued in June 1975.

[17] The exact percentage will depend on the association's net worth position.

[18] The change in maturity was authorized by the Depository Institutions Act of 1977, signed into law on April 19, 1977.

[19] In Missouri, home improvement loans are subject to a lower interest rate ceiling than are junior mortgages.

[20] As discussed below, however, State-imposed usury ceilings may restrict lending by all institutions when market interest rates are high.

[21] There are no Federal junior mortgage programs or rate ceilings.

[22] The 6 per cent add-on rate ceiling for West Virginia translates into nearly 12 per cent, on an annual-percentage-rate basis.

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WORKING PAPER NO. 26

Consumer Perceptions of Credit Bureaus

Krannert Graduate School of Management – Purdue University

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CONSUMER PERCEPTIONS OF CREDIT BUREAUS

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Robin DeMagistris

Abstract

Regulation has often been instituted because of pressure from misinformed consumers. This paper presents a sample of consumers' perceptions of credit bureaus and suggests how consumer misperceptions could impact the regulation of credit. A survey of California bandcard users indicated that the majority of these credit card users did not have an accurate concept of the function of the credit bureau. Over 50 percent of those surveyed felt, inaccurately, that credit bureaus provide consumer credit ratings while only 37 percent correctly identified credit bureaus as record-keeping agencies. An examination of the demographic characteristics of the bankcard users suggested that no strong relationships exist between consumer awareness of the function of credit bureaus and occupation, income or education. Further, neither the frequency of use nor the number of credit cards held contributed significantly to consumers' knowledge of the credit bureau.

A comparison of the perceptions of regular and problem bankcard account holders indicated that those who had problems making payments were slightly more informed about the record-keeping function of credit bureaus than regular bankcard account holders. Thus, it appears from this sample of bankcard holders that consumers' knowledge of credit bureaus is limited.

There seemed to be no consistent relationship between demographic characteristics of bankcard holders and the types of information survey participants felt credit bureaus should maintain. Most credit cardholders felt that records of promptness in paying bills was appropriate. Slightly less of the problem account sample felt this way. Most of those surveyed were willing to allow credit grantors to check credit bureau records. Again, fewer problem account holders were willing to allow credit-grantors access to this information. Reasons for unwillingness to allow access to credit bureau records were not given in most cases, but, in general, consumers were reluctant to allow access because they felt credit bureau records were unreliable or out of date.

It is evident from study of the responses of bankcard holders in the survey that many consumers do not understand the role of the credit bureau as an information intermediary in the credit-granting process. Incorrect perceptions about credit bureaus could lead to pressure for restriction of information available to credit-grantors. Such restriction would most likely result in contraction of available credit. Thus, legislators must carefully assess the costs of limiting the information available to credit-grantors relative to the benefits in terms of consumer protection.

CONSUMER PERCEPTIONS OF CREDIT BUREAUS

Of the many causes of regulatory confusion and failure, consumer ignorance and misperception likely rank high on the list. In some cases, a lack of information generates dissatisfaction and complaints that are unwarranted in terms of institutional performance. Yet, such complaints are an important part of the information base used to promulgate regulation. In other cases, this lack of information will prevent complaints from being communicated to regulatory bodies, again biasing the regulatory process. Often, the frequency of complaints is not examined relative to the associated volume of successful transactions, and infrequent, dramatic failures draw disproportionate attention. The area of privacy provides a good example of both of these types of problems. In some instances, complaints result from the use of information which, in terms of a common law basis of acceptability, was probably legitimate. In other cases, information about consumers is used without their awareness or consideration of the effect such use might have on them. Thus, consumers might complain that a retailer solicits additional business from them using the information from their credit card accounts at particular stores while being unaware that several contacts from other solicitors resulted from the purchase of information from a magazine subscription list.

Many institutions maintain records about individuals and their financial transactions. One that has received particular attention in recent times is the credit bureau. Credit bureaus maintain files on consumers who use credit, and provide this information to credit-grantors who are considering new applications for credit or increases in existing credit lines. Credit bureaus perform an important intermediary role by consolidating credit account use information from various credit-grantors and then transmitting the data to potential credit-grantors. Thus, the credit bureau, as an intermediary, improves the flow of information to credit-grantors, resulting in better credit decisions [3].

This paper reports the perceptions of bank credit card users regarding the role of the credit bureau, and demonstrates how their opinion differs from actual performance of the credit bureau. This study uses the Credit Center's California Bankcard Study data base, a sample of active bank credit card accounts taken from the files of California banks in 1977. The participating banks accounted for roughly 90 percent of the credit card activity generated in the state. The data set also included the construction of twelve-month account histories for each selected bankcard account, and a special study of twenty-five problem accounts from each bank, accompanied by a reconstruction of the collection activity for each of these accounts. A problem account was defined as an account that had required any effort to collect delinquent balances beyond normal billing during the twelve-month period studied. Further, each of these two classes of accounts was sent a questionnaire requesting economic and demographic information. The questions related to perceptions of credit bureaus are included in Appendix A.

This study is composed of two sections: consumers' perceptions of credit bureaus and consumers' views about the information maintained by credit bureaus. The first section investigates the relationship between consumer characteristics and credit use patterns and the accuracy of perceptions about credit bureaus. The second section discusses consumers' knowledge of the content of credit bureau records and consumer opinions of what information should be contained in these records.

I. Consumers' Perceptions of Credit Bureaus

A. General Perceptions

The distribution of survey respondents' perceptions of credit bureaus is shown in Table 1. Clearly, the majority of people did not have an accurate idea of what a credit bureau does. More than 50 percent thought a credit bureau was responsible for providing a consumer credit rating. Although some credit bureaus do employ numerical systems to characterize accounts, the basic function of a credit bureau is to maintain and disseminate information about past consumer credit use. Some credit bureaus have instituted systems to summarize or classify credit histories. Points are assigned to accounts based on the information in the history. The statistics do not rate the account, only describe it. Any weighting, numerical or otherwise, is made by the creditor. Most often, such summary statistics are used to pre-screen accounts for credit solicitation programs and are not commonly reported to credit grantors.

Only 37 percent of respondents correctly identified a credit bureau as a record-keeping agency. Interestingly, few consumers confused the function of the credit bureau and the collection agency. Only three percent of the sample thought a credit bureau was a collection agency. This small percentage is surprising since many credit bureaus operate collection agencies in addition to maintaining credit records. These responses indicate how little people actually know about the function of the credit bureau and can perhaps explain why criticisms of credit bureaus and the credit-granting process have arisen.

Table 1: Distribution of Perceptions about Credit Bureaus

Perceptions	Number of accounts	Percent of sample
a) Government agency	23	3%
b) Collection agency	20	3
c) Record keeping agency	275	37
d) Credit rating agency	404	54
c and d	7	1
b and d	1	*
No answer	18	2
All	748	100%

*Less than .5%

Source: Credit Research Center, Purdue University. California Bank Card Study.

B. General Perceptions According to Demographic Characteristics of Cardholders

No single demographic segment of the sample population seemed more knowledgeable than any other about credit bureaus, as demonstrated in Table 2. Among educational groups, consumers with the least schooling identified the function of credit bureaus correctly most often, but also supplied no answer most often of all groups. Fifty-seven percent of

Table 2: Distribution of Perceptions About Credit Bureaus by Selected Demographic Characteristics

Education	N	Percent of Sample	a)Government agency	b)Collection agency	c)Record keeping agency	d)Credit rating agency	c&d	b&d	No answer
Grade school	15	2%	7%	*	47%	33%	*	*	13%
Some high school	40	5	10	8	37	40	*	*	5
High school	138	18	3	4	38	50	2	*	3
Some college	235	31	2	4	34	58	*	*	2
Undergrad degree	101	14	2	1	45	52	*	*	1
Postgrad study	84	11	2	1	32	57	5	*	3
Advanced degree	130	17	3	1	36	57	*	*	3
No answer	5	1	20	*	20	60	*	*	*
All	748	100%	3%	3%	37%	54%	1%	*	2%
Income									
Under $5000	17	2%	*	6%	12%	64%	6%	*	12%
$5001-7500	14	2	14	*	22	43	*	*	21
$7501-10,000	38	5	5	5	32	55	*	*	3
$10,001-15,000	108	14	5	3	30	59	*	*	3
$15,001-20,000	127	17	2	5	46	46	1	*	*
$20,001-25,000	126	17	1	2	44	50	2	*	1
$25,001-30,000	109	15	3	*	30	65	1	1	*
$30,001-40,000	96	13	4	2	40	51	1	*	2
$40,001 or more	77	10	3	3	42	49	*	*	3
No answer	36	5	3	3	22	58	3	*	11
All	748	100%	3%	3%	37%	54%	1%	*	2%
Occupation									
Professional	106	14%	4%	1%	37%	54%	2%	*	2%
Technical	42	6	2	*	38	55	2	*	3
Super-Mgr.	176	23	2	2	40	55	*	*	1
Clerk	131	17	3	3	41	50	*	*	3
Craftsman	89	12	1	1	42	49	2	1	4
Service	56	8	*	3	34	63	*	*	*
Unskilled	44	6	5	9	27	54	*	*	5
Student	85	11	6	8	26	57	2	*	4
No Answer	19	3	11	*	37	47	*	*	5
All	748	100%	3%	3%	37%	54%	1%	*	2%

*less than .5%

Source: Credit Research Center, Purdue University. California Bankcard Study.

respondents who had completed post graduate study and advanced degrees thought credit bureaus were credit rating agencies. The middle income groups, consumers earning $15,001 to $25,000 annually, responded correctly most frequently. About 45 percent of this group gave the proper definition of credit bureaus. It is evident that a large proportion of the consumers surveyed in all socio-economic classifications have inaccurate knowledge of credit bureau function. These consumers represented a rather select segment of the population since they all had bank credit cards and had used credit extensively. It is likely that awareness of credit bureaus is even more limited among less frequent users of credit.

Among bankcard users, frequency of credit use showed no significant relationship to awareness of credit bureau function. One measure of the use of credit is the number of times per month consumers' use all their credit cards: retail, gasoline, travel and entertainment cards as well as bankcards. Table 3 shows the distribution of perceptions about credit bureaus by the number of times California bankcard holders used all their credit cards per month. Curiously, those using credit cards less than six times per month chose the correct description of a credit bureau slightly, but not significantly, more frequently than those who used their credit cards more than 20 times per month. Forty-eight percent of the respondents using credit cards 15 to 19 times per month identified the function of credit bureaus correctly. This percentage is well above the sample average of 37 percent correct response, but these respondents represent only five percent of the total sample.

Table 3: Distribution of Perceptions About Credit Bureaus by Credit Card[a] Use Per Month

Credit Card Use	N	Percent or Sample	(a) Government agency	(b) Collection agency	(c) Record Keeping agency	(d) Credit rating agency	c & d	b & d	No Answer
Under 6 times	392	52%	3%	3%	39%	52%	1%	*	2%
6-9 times	149	20	5	2	33	56	*	1	3
10-14 times	107	14	2	3	32	59	2	*	2
15-19 times	39	5	*	*	48	46	3	*	3
20 or more times	55	8	2	2	32	60	2	*	2
No Answer	6	1	*	*	67	33	*	*	*
All	748	100%	3%	3%	37%	54%	1%	*	2%

---

[a] Inclues all types of credit cards.

*less than .5%

Source: Credit Research Center, Purdue University. California Bank Card Study.

A second measure of credit use is the total number of credit cards held by consumers. As the number of credit accounts increases, the number of credit-grantors likely to have checked the consumer's credit bureau record increases. As a result, consumers with more credit cards may be more aware of the interactions between credit bureau and creditor and more accurately identify the role of the credit bureau than consumers who have fewer credit cards. The distribution of perceptions about credit bureaus by total number of credit cards held is shown in Table 4. Although consumers having 15 or more credit cards correctly identified the credit bureau as a record keeping agency slightly more frequently than consumers having only one to four credit cards, there appears to be no consistent relationship between knowledge about credit bureaus and the number of credit cards owned. Apparently, credit use patterns do not necessarily contribute to consumer understanding of the function of credit reporting agencies. Much of the interaction between credit-grantors and credit bureaus is unknown to the credit card users.

C. Perceptions of Problem Account Holders

One group of consumers who are likely to be more concerned with the function of credit bureaus are those who have become problems to creditors, since credit bureaus keep records of credit problems such as past bankruptcies and delinquency of bill payments. In the study of California bankcard holders, a sample of problem bank credit card accounts was collected and survey questionnaires were administered to the holders of these accounts. Table 5 shows the distribution of the perceptions about credit bureaus for these consumers. Comparison of these figures with those for regular account holders shows that a higher proportion of the consumers who had

Table 4: Distribution of Perceptions About Credit Bureaus by Total Number of Credit Cards[a] Held

Total Number of credit cards	N	Percent	(a) Government agency	(b) Collection agency	(c) Record Keeping agency	(d) Credit rating agency	c & d	b & d	NO Answer
1-4 cards[b]	145	19%	3%	3%	36%	54%	1%	*	3%
5-9 cards	311	42	4	3	38	52	*	*	3
10-14 cards	222	30	3	3	34	57	2	*	1
15 or more cards	70	9	3	*	45	50	1	*	1
All	748	100%	3%	3%	37%	54%	1%	*	2%

---

[a] Includes all types of credit cards.

[b] Everyone surveyed had at least on credit card.

*less than .5%

Source: Credit Research Center, Purdue University. California Bank Card Study.

Table 5: Distribution of Perceptions About Credit Bureaus: Comparison of Responses Made by Consumers with Regular and Problem Accounts

	Number of Accounts		Percent of Sample	
Perceptions	Regular accounts[a/]	Problem accounts	Regular accounts[a/]	Problem Accounts
a) Government agency	23	2	3	2
b) Collection agency	20	5	3	5
c) Record keeping agency	275	50	37	44
d) Consumer rating agency	404	54	54	48
c and d	7	0	1	*
b and d	1	0	*	*
No answer	18	1	2	1
All	748	112	100%	100%

[a/] From Table 1.

* Less than .5%

Source: Credit Research Center, Purdue University. California Bankcard Study.

problems identified credit bureaus as record keeping agencies (44% as opposed to 37% of the regular sample). Slightly more people from the problem account sample than the general sample thought credit bureaus were collection agencies. Again most of the respondents in this second sample did not know what the function of a credit bureau was. This suggests that people who have reason to worry about their credit records are better informed about credit bureaus than credit card users in general, although neither group is very knowledgeable on the subject.

The demographic characteristics of the bankcard-holders with problem accounts are presented in Table 6. Knowledge of credit bureau function increased, in general, with education, with the exception of those with advanced degrees. Whereas 36 percent of those with advanced degrees in the general sample correctly identified credit bureaus as record-keeping agencies, only 20 percent of that group in the problem account sample correctly identified this function.

Correct perception of the function of the credit bureau rose with the income level of the problem account. Again, an interesting exception was the highest income group, in which only 11 percent identified credit bureaus correctly. As in the case of the general sample (Table 2), perceptions about credit bureaus did not seem to be related to occupation.

To summarize, consumers' knowledge of the role of the credit bureau in the credit granting process is limited. Since the majority of consumers believe that credit bureaus act as credit rating agencies, it is not surprising that many consumers may feel that restrictions should be placed on the information credit bureaus maintain.

Table 6: Distribution of Perceptions About Credit Bureaus by Selected Demographic Characteristics: Consumers with Problem Bankcard Accounts

Education	N	Percent of sample	a)Government agency	b)Collection agency	c)Record keeping agency	d)Credit rating agency	No answer
Grade school	4	4%	25%	25%	25%	25%	*
Some high school	8	7	*	13	25	50	12
High School	21	19	*	4	48	48	*
Some college	37	33	3	*	54	43	*
Undergrad degree	14	12	*	*	50	50	*
Postgrad	13	12	*	*	54	46	*
Advanced degree	15	13	*	13	20	67	*
All	112	100%	2%	5%	44%	48%	1%
Income							
Under $5000	5	5%	20%	20%	*	60%	*
$5001-7500	6	5	*	17	17	66	*
$7501-10,000	7	6	*	*	29	57	14
$10,001-15,000	17	15	*	6	41	53	*
$15,001-20,000	27	24	*	4	48	48	*
$20,001-25,000	16	14	*	6	75	19	*
$25,001-30,000	12	11	*	*	50	50	*
$30,001-40,000	11	10	9	*	64	27	*
$40,001 or more	9	8	*	*	11	89	*
No answer	2	2	*	*	50	50	*
All	112	100%	2%	5%	44%	48%	1%
Occupation							
Professional	17	15%	*	6%	18%	76%	*
Technical	6	5	*	*	17	83	*
Super-Mgr.	21	19	*	5	71	24	*
Clerk	25	22	4	4	60	32	*
Craftsman	18	16	*	11	39	50	*
Service	9	8	*	*	44	44	12
Unskilled	10	9	*	*	30	70	*
Students	5	5	20	*	40	40	*
No answer	1	1	*	*	*	100	*
All	112	100%	2%	5%	44%	48%	1%

*less than .5%

Source: Credit Research Center, Purdue University. California Bank Card Study.

II. Consumers' Views on Information Held by Credit Bureaus

To determine what types of information maintained by credit bureaus were acceptable to consumers, California bankcard holders were asked to consider the kind of information they thought credit bureaus maintained about consumers (question 33, Appendix A) and also what types of information should be permitted. Table 7 shows a comparison of the distributions of the types of data consumers thought were maintained for both the regular and the problem samples. Also included in the table are the types of data actually maintained by credit bureaus according to a report of the Privacy Protection Study Commission and a spokesman for the Credit Bureau of Lafayette, Indiana.

According to the report of the Privacy Protection Study Commission, "there is a consensus within the industry as to the categories of information on an individual a credit bureau should maintain and report." ([4], p. 56). There are five basic categories of information. The first category, identifying information, consists of the individual's full name, social security number, address, telephone number, and spouse's name. The second category of information is financial and employment status, including income, spouse's income, place, position, and tenure of employment, additional sources of income and income from former employment. Credit history is the third category of information stored by credit bureaus. Data collected include types of credit previously obtained, names of previous credit grantors, extent of previous credit, and complete payment history. Also, part of credit bureau files are records of existing lines of credit, payment patterns and outstanding obligations owed to participating creditors. The last category of information maintained

Table 7: Distribution of Types of Data Consumers Believe are Maintained and Types of Data Consumers Feel Should be Maintained by Credit Bureaus for General Credit Card Account Sample and Problem Credit Card Account Sample.

Data	Information is Maintained			Information that Should be Permitted			Privacy Protection Commission Study of Credit Bureau Records data maintained	Credit Bureau of Lafayette, IN
	Regular accounts	Problem accounts	Weighted average [a]	Regular accounts	Problem accounts	Weighted average		
Records of bill payment promptness	95%	96%	95%	90%	81%	89%	Yes	Yes
Gossip and other opinion information	26	25	26	2	2	2	No	No
Past personal bankruptcies	85	82	85	74	65	73	Yes	Yes
Balances in savings and checking accts.	35	24	34	16	11	15	[b]	[b]
Information about moral behavior and habits	30	18	28	6	1	5	No	No
Records of Assets	41	34	40	20	17	20	Yes[c]	No[c]
Social security number	83	84%	83%	66%	64%	66%	Yes	No[d]

[a] Weighted average of two samples for each response.

[b] Balances are not maintained, but the existence of these accounts may be recorded in credit bureau files.

[c] Some credit bureaus maintain records of arrests, some maintain records of convictions.

[d] Social security number is included in some of the Lafayette credit bureau records, but is used only as a final check in the automated reporting procedure.

Source: Credit Research Center., Purdue University. California Bank Card Study.

by credit bureaus is the information of public record, such as arrest and conviction records, bankruptcies, tax liens, and law suits. The credit bureau also lists bureau subscribers who have previously asked for a credit report on the individual.

The keeping of records of promptness in paying bills was acceptable to nearly all respondents, at least 90 percent of both sample groups. As might be expected, consumers with problem acccounts thought that these records should be maintained by credit bureaus slightly less frequently than other consumers. This response reflects the desire of persons with problem credit histories to protect themselves from being refused credit because of past difficulties. The same reluctance to allow damaging information to be recorded appears in the responses to the maintenance of records of past personal bankruptcies. Again, most respondents knew that such information was recorded by credit reporting agencies and believed that it was appropriate that this type of information be maintained. Eighty-five percent of the general sample and 75 percent of the problem sample agreed with the practice.

Two controversial types of information about consumers not collected or maintained by credit bureaus are gossip and information about consumers' moral behavior. Opinion information about individuals is typically obtained only for specific investigative consumer reports, such as those for insurance companies [2]. Consumers were confused between the functions of investigative reporting and credit reporting since nearly 30 percent believed that credit bureaus do maintain opinion information. Further, there appears to be no consistent relationship between income, occupation or education and the types of information consumers felt should be recorded by credit bureaus for either the general sample or the problem sample.

Another indication of consumers' attitudes about the information credit bureaus keep is their willingness to have credit-grantors check their credit records (Table 8). As might be expected, more respondents in the general sample (91 percent) were willing to have their credit bureau records supplied to creditors than those from the problem sample (only 76 percent). This discrepancy can again be attributed to the desire of the consumers who have had problems making payments on credit balances to protect themselves from a possible refusal of credit by some other credit grantor in the future.

Table 8: Willingness to Allow Creditors to Check Credit Bureau Records

	Number of accounts		Percent of sample	
Willing	Regular accts.	Problem accts.	Regular accts.	Problem accts.
Yes	687	85	91%	76%
No	36	19	5	17
Don't Know	20	6	3	5
No Answer	5	2	1	2
All	748	112	100	100 %

Source: Credit Research Center, Purdue University. California Bank Card Study.

The survey also asked consumers to give reasons for their unwillingness to allow credit-grantors access to credit bureau records. Only four percent of the regular sample and 12 percent of the problem sample replied. Of the reasons given for reluctance to allow credit-grantors examination of credit reports, ten percent of the problem respondents answered that they felt credit record information was unreliable or out of date. The Fair Credit Reporting Act requires that credit bureaus have "reasonable procedures" to insure that the information they report to their subscribers is accurate [5]. Most credit bureaus update files by contacting credit-grantors, other credit bureaus, employers, landlords, and credit references supplied on the individuals' application for credit. If the individual reviews his credit record, he may submit changes or additions, in most cases. Further, credit bureaus are responsible for purging records of information older than seven years (14 years for bankruptcy records) under the provisions of the Fair Credit Reporting Act. In addition, some state governments further limit some types of adverse information that can be maintained or reported by credit bureaus. The extent of adherence to these regulations is not known, but it is clear that some consumers are not aware of these limits on credit bureau information.

Overall,bank credit card users accepted the types of information generally maintained by credit bureaus as necessary to the credit-granting process. Persons who had accumulated bad credit records showed greater reluctance to expose these records to credit-grantors, as would be expected. However, the majority of consumers with problem accounts felt these reports were necessary to the credit-granting process and should be maintained by credit bureaus.

III. Conclusions

In summary, consumers do not really understand the role of credit bureaus as information intermediaries in the credit-granting process. Consumers also are not well-informed about the information that credit bureaus maintain, but do not seem to object to the types of information that are actually kept in credit bureau files. Because this information assists credit grantors in making good credit decisions, credit grantors are willing to pay for the information. Good credit decisions mean that credit-grantors are better able to extend credit to consumers who can successfully repay and refuse credit to those who cannot. The better firms are at making this distinction, the fewer problems will be observed relating to overextension, debt collection, and other such problems that concern many governmental agencies.

Restricting the information that can be kept and therefore used by credit bureaus because of consumer pressure resulting from misperceptions will only make it more difficult for credit-grantors to make sound credit decisions. This state of affairs will likely result in an overall contraction of credit available at the margin. To the consumers affected, this is a cost, a reduction in their welfare and their wealth. Some consumers who should receive credit will be denied that credit. Others who should be denied credit will be granted credit and will suffer the consequences of non-payment. Both sets of consumers are injured. To impose such costs in order to prevent some of the information with which some harm might be associated entails a value judgment. Such a value judgment may prove to be inconsistent with reasonable measures of the damage done through information misuse, given that the legal system already provides a means, although perhaps imperfect, of redressing the damage done from misuse.

APPENDIX A:

Question 31, 32, 33, 34, 16 of California Bankcard Study Questionnaire

16. **Are there any practices of credit card issuers that you would like to see changed?** ☐ Yes ☐ No

***If yes*, please explain** ______________________________

____

____

31. **Please check the *one* of the following definitions that you think best describes a *Credit Bureau*.**

______ **a.** A government agency that collects and maintains the credit records of individuals.
______ **b.** A private corporation that attempts to collect unpaid bills of consumers.
______ **c.** A private corporation that collects and maintains records showing how promptly consumers pay their bills.
______ **d.** A private corporation that rates consumers and determines whether or not they should receive credit.

32. **Do you think you could go to a credit bureau to check on the contents of a file maintained about you?**

☐ Yes ☐ No ☐ Don't Know

33. **In the *left hand column*,** please check *one or more* of the following items of information concerning consumers that you **believe are *now*** maintained in the records of a credit bureau.

Credit Bureaus NOW Have	Information credit bureaus *should be permitted to have*
______ **a.** Past records of how promptly bills have been paid	**a.** ______
______ **b.** Gossip and other opinion information	**b.** ______
______ **c.** Past personal bankruptcies	**c.** ______
______ **d.** Balances in savings and checking accounts	**d.** ______
______ **e.** Information about moral behavior and habits	**e.** ______
______ **f.** Records of arrests	**f.** ______
______ **g.** Social Security Number	**g.** ______

Now please go back and check in the *right hand column* those items that you believe the credit bureau *should* **be permitted to have about consumers.**

34. **If you applied for credit, would you be willing to let the creditor check the information about you on file with the credit bureau?**

☐ Yes ☐ No ☐ Don't Know

35. Why not? ______________________________

____

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WORKING PAPER No. 27

Mobile Home Demand and Sources of Financing

1979

Krannert Graduate School of Management – Purdue University

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MOBILE HOME DEMAND AND SOURCES OF FINANCING

Charles A. Luckett*

Abstract

Once viewed as an important emerging housing alternative, mobile homes experienced a sharp decline in shipments in the mid-1970s, raising new doubts about their ultimate role in meeting the nation's housing needs.

This paper examines recent mobile home shipments, sales, and financing patterns. The findings show that shipments levels in the early 1970s may have provided misleading overestimates of final sales to the consumer, as dealers accumulated inventories rapidly at that time. This phenomena exaggerated the apparent magnitude of the later decline in sales in 1974-75, as dealers switched from inventory accumulation to inventory decumulation during the latter period. On the other hand, the paper also indicates that the current post-recession recovery in final sales may be considerably weaker than was implied by the modest growth in dealer shipments during 1976-77. On balance, the significance of mobile homes as a major source of services still appears in question.

Other evidence presented here suggests that lender restraint on credit availability for mobile home finance, stemming in part from unfavorable delinquency and loss experience, has been one of the important determining factors of sales trends in recent years.

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Mobile Home Demand and Sources of Financing

In the late 1960s and early 1970s it was easy to project the future for mobile home sales. One could simply assemble comparative statistics on the cost-per-square foot of a mobile home versus a site-built home--noting that the mobile home also included furniture--and conclude that mobile homes would garner a larger and larger share of an expanding housing market, as more and more families were priced out of conventional housing.

One would also conclude that financial institutions would readily supply ample funds because mobile home paper carried higher gross yields than home mortgages, and the faster portfolio turnover rates on the shorter-maturity mobile home loans would permit a closer matching of the effective lives of lender assets and liabilities. Even recession would not necessarily be a bad thing for the mobile home industry; hard times might well speed the shift from expensive site-built housing to more economical manufactured housing.

By 1972 mobile homes accounted for nearly one-fifth of the total U.S. new-shelter market, as manufacturers shipped over 550,000 mobile homes to domestic dealers that year compared with 2.4 million starts of site-built units.[1/] Moreover, in the cyclical downswings in private housing starts that began in 1966 and 1969, mobile-home shipments had merely edged down, whereas conventionally-built housing starts dropped sharply.

But in 1974-75 the pattern of steadily advancing mobile home sales was interrupted. From a peak annual rate of 653,000 units in the first quarter of 1973, mobile home shipments plunged to 375,000 by mid-1974, then fell off further to 200,000 per year in the second quarter of 1975. Starts of conventionally-built housing declined almost as sharply over this 1973-75 period. Since then, however, conventioanlly-built housing starts have again recovered to the two million mark, whereas mobile home shipments are still less than half their 1973 rate. The mobile home industry struggled to achieve a 15 percent increase in shipments in 1976, and it managed only a 12 percent increase in 1977.

The sharp 1973-75 decline and modest post-1975 recovery in mobile home shipments has reopened the question of the mobile home's viability as a significant housing alternative. Was the 1973-75 mobile home recession a temporary--albeit traumatic--shakeout, to be followed by renewed growth? Or has the glowing future once seen for mobile home sales and finance been dimmed more permanently?

Numerous data on mobile home sales and financing with which to address these issues are available. This paper attempts to tie together all the statistical evidence in focusing particularly on the following questions:

1) What has been the true pattern of mobile homes sales (as opposed to shipments) in recent years?

2) To what extent has restraint on credit supply contributed to the pattern of sales?

3) To what extent is such constraint still operating?

Answers to these questions could be very important in evaluating the implications of the apparent slow recovery in mobile home shipments.

Recent Patterns of Mobile Home Sales

Shipments of mobile homes fell sharply in 1974-75. From peak to trough, the decline was 70 percent. This decline, however, overstates the degree to which sales to the final consumer dropped. The early 1970s were years of optimism--new dealers entered the market in great numbers and many existing dealers opened new lots. Every dealer made certain he was well-stocked for the expected stream of customers. But when demand for new units slowed to a trickle in early 1974, the large reservoir of unsold inventory threatened to drown the dealer rather than to sustain him. Because dealer inventories were so high, the reduced sales levels in 1974 and 1975 could be maintained on a vastly lower volume of factory shipments.

Little industry data exist to document movements in actual sales and dealer inventories for years prior to 1974, although new Census Bureau data (shown in Table 1) provide estimates beginning with 1974. Therefore, an attempt was made to generate some estimates of final sales for the 1972-77 period based on Federal Reserve Board data on mobile home credit volume and loan terms,[2/] and average loan size data from the American Bankers Association. These data were used to generate estimates of the number of units financed, assumed to closely approximate the number of units sold on the grounds that few new units are purchased strictly for cash.[3/] An adjustment was made to subtract financing of second-hand units to provide a better comparison between sales and shipments.[4/] Units financed were calculated by dividing total mobile home credit extended by the average contract amount (principal plus precomputed interest), which in turn was estimated as a weighted average of loan amounts at banks and finance companies.[5/] No effort was made to adjust for refinancing activity, a factor which could distort the units financed estimate of sales by "over-stabilizing" it.[6/] Calculated estimates of units sold (financed) appear in Table 2, along with data on manufacturers' shipments.

TABLE 1

NEW MOBILE HOME PLACEMENTS, PRICES AND INVENTORIES 1974-77, CENSUS BUREAU SERIES[1]

(Units in thousands, NSA)

	Placements for Residential Use (Units, at annual rates)	Dealer Inventory End of Period (Units)	Average Sales Price (Dollars)
1974 - Q1	372	126	8,500
Q2	411	121	9,100
Q3	374	106	9,600
Q4	226	95	10,000
1975 - Q1	185	87	9,900
Q2	248	83	10,600
Q3	271	77	11,000
Q4	213	73	11,700
1976 - Q1	189	77	11,400
Q2	270	76	11,800
Q3	294	72	12,700
Q4	230	74	13,400
1977 - Q1	195	78	13,600
Q2	278	78	13,900
Q3	305	73	14,300
Q4	236	72	14,900

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[1] Source: Census Bureau, C.20 Construction Report--Housing Starts. A description of the series is included in the December 1976 Report, C.20 - 76-12.

p = Preliminary.

TABLE 2

NEW MOBILE HOME SHIPMENTS AND FINAL SALES
Seasonally Adjusted Annual Rates
(Thousands of Units)

Period	Estimate of units financed = units sold[1]	Manufacturer shipments to dealers[2]	"Sales Gap" units sold less shipments	Estimate of Average Contract Amount	
				Finance Cos.[3]	Banks & Others[4]
1972 - Q1	513	573	-60	$ 9,740	$8,587
Q2	514	575	-61	10,116	
Q3	522	542	-20	10,651	
Q4	527	631	-104	10,970	
1973 - Q1	559	653	-94	10,923	$10,275
Q2	516	595	-79	11,483	
Q3	505	532	-27	11,965	
Q3	492	492	0	12,241	
1974 - Q1	438	420	18	12,489	$12,143
Q2	400	377	23	12,855	
Q3	328	304	24	13,931	
Q4	282	217	65	14,125	
1975 - Q1	259	202	57	13,524	$11,272
Q2	256	199	57	14,257	
Q3	266	219	47	14,500	
Q4	287	235	52	15,069	
1976 - Q1	309	262	47	15,007	$11,494
Q2	276	238	38	15,080	
Q3	270	237	33	15,789	
Q4	275	253	22	16,290	
1977 - Q1	259	269	-10	16,111	$13,497
Q2	269	256	13	16,992	
Q3	263	274	-11	17,990	
Q4	258	319	-61	18,243	

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[1] Total mobile home credit extended, divided by a combined average contract amount, and adjusted to remove second-hand units. Based on Federal Reserve data in G.19 and E.10 releases, and American Bankers Association Installment Credit Survey.

[2] From Manufactured Housing Institute and Census Bureau.

[3] Principal plus finance charge, calculated from Federal Reserve E.10 data.

[4] Weighted average of loan amounts for direct and indirect mobile home loans; annual data available from American Bankers Association.

The sales estimates suggest several conclusions. First, actual sales of mobile homes were never as bad in 1974-75 as the shipments series suggested, in part because sales were never as good in 1971-73 as shipments represented them to be. But regardless of whether sales fell off 70 percent (shipments series) or 45 percent (units financed series), the decline was a large one. Since conventionally-built housing starts fell over 50 percent during the same span, there was little if any difference between final sales of mobile homes and housing in general during the 1974-75 recession.

Perhaps a point of greater significance than the magnitude of the 1974-75 decline for estimating trends in housing alternatives is that the subsequent recovery in new mobile homes appears considerably weaker measured by the sales (units financed) series than by the shipment series. Study of the 5-1/2 years of shipments and sales shows that during the entire period from late 1973 through 1976 dealers were working off inventories by selling more units than were shipped to them. This behavior also implies that the recovery that took place in shipments after late 1975 reflected more a shift from net inventory liquidation to normal replacement activity rather than renewed strength in final sales. In fact, final sales (units financed) as of year-end 1977 appear little higher than in early 1975. In contrast, site-built housing starts nearly doubled over the same period. It also appears from these estimates that shipments may have exceeded sales during 1977, although the Census data in Table 1 do not indicate a renewed buildup in inventories. The final sales series (Table 2) is hardly a precise measure, of course, but it does signal that a possible sales-shipments imbalance may be materializing again.

Possible explanations for the sharp 1974-75 recession in mobile home sales--and failure of recovery--are plentiful. Overbuilding, which also disrupted conventionally-built housing, partly explains the rollercoaster mobile home sales pattern but hardly accounts for the more recent disappointing experience.

Another factor is the general problem of unfavorable product image which still plagues the mobile home industry. Despite improved quality and the advent of house-like double-wides, many people still think of mobile homes as substandard "trailers." Aside from intensifying the industry's chronic problem with local zoning regulations,[7] a lackluster image renders mobile homes especially vulnerable to competitive counterattack. Dealers, lenders, and industry analysts may have forgotten this vulnerability in the heady sales climate in the early 1970s. Public acceptance at that time, though broad, was apparently not very deep. In retrospect, mobile homes seem to have been an easy prey to site-built competition, exemplified, for instance, in the rediscovery and successful promotion of the townhouse.

Credit Supply Conditions

Sharp swings in credit availability in recent years also helped to shape the pattern of mobile home sales. It is widely acknowledge that unexacting lending standards in the late 1960s and early 1970s helped to move units off the dealers' lots--at least temporarily.[8]

Lenient credit conditions were reflected in gradually rising delinquency rates in 1972 and 1973. With the advent of the 1974-75 recession, delinquency rates rose even more sharply. At commercial banks, the average delinquency rate on mobile home loans doubled (and repossessions nearly tripled) between the first quarter of 1973 and the first quarter of 1975 (Tables 3 and 4). Delinquency rates reportedly approached ten percent in some areas. Generally, low owner equity and availability of close housing substitutes at lower monthly outlays (e.g., rental units, living with relatives) contributed to the high incidence of delinquency and repossession. Moreover, perhaps as many as 60 percent of the dealers for which lending institutions had financed inventories went out of business, adding appreciably to lender costs.

Shaken by this experience, many lenders retreated from mobile home financing altogether. At least one-quarter of the finance companies which originally reported to the Federal Reserve on mobile home loans for the E.10 release have discontinued making such loans. According to the American Bankers Association, the percentage of banks purchasing mobile home paper from a dealer service company declined from 27 percent in 1972 to eight percent in 1976.[9/]

Lenders who continued to finance mobile homes tightened their lending policies considerably.[10/] Finance rates moved higher (Table 5). Between early 1973 and late 1975, they rose from 10.7 percent to 11.9 percent on bank direct mobile home loans, and from 12.5 to 13.8 percent on finance company loans. Moreover, the previous rapid lengthening of maturities abated, and, on average, a smaller proportion of the sales ticket was financed--less than 70 percent in late 1976 compared with over 90 percent in late 1972 (Table 5). But credit rationing lenders probably placed greater overall reliance on adopting more stringent loan-granting criteria for which little documentation exists than on restricting lending terms.

TABLE 3

DELINQUENCY, REPOSSESSION, AND LOSS RATES ON MOBILE HOME LOANS AT COMMERCIAL BANK[1]

Period	Delinquency Rate[2]	Repossession Rate[3]
1972 - Q1	1.91	2.96
Q2	2.08	2.71
Q3	2.37	2.67
Q4	2.49	2.86
1973 - Q1	2.68	2.63
Q2	2.79	2.87
Q3	2.80	3.35
Q4	3.02	2.90
1974 - Q1	4.20	4.73
Q2	3.70	4.09
Q3	3.57	3.82
Q4	3.81	3.82
1975 - Q1	4.10	6.37
Q2	3.69	4.42
Q3	3.95	3.68
Q4	3.69	2.82
1976 - Q1	3.54	2.92
Q2	3.30	2.21
Q3	3.63	2.43
Q4	3.39	2.20
1977 - Q1	3.43	2.71
Q2	3.54	2.23
Q3	3.57	2.22
Q4	3.57	1.89

Loss Rates,[4] Direct Loans

Period	Gross	Net
1971	.24	.26
1972	.17	.12
1973	.37	.20
1974	1.06	.71
1975	1.54	.43
1976	.43	.28

Loss Rates,[4] Indirect Loans

Period	Gross	Net
1971	.15	.14
1972	.12	.06
1973	.19	.12
1974	.39	.24
1975	1.20	.18
1976	1.17	.66

Loss Rate[4] - FHA Title I

Period	Gross	Net
1974	.02	.01
1975	.47	.18
1976	.75	.75

1/ Source: American Bankers Association, Delinquency Rates on Bank Instalment Loans, various issues, and Instalment Credit Survey, 1976.

2/ Number of loans delinquent over 30 days as per cent of total loans outstanding.

3/ Number of units repossessed as per cent of loans outstanding; bimonthly and monthly rates converted to quarterly annual rates at Federal Reserve.

4/ Dollar losses as per cent of total liquidations during year.

TABLE 4

DELINQUENCY RATES ON MOBILE HOME LOANS, ALL LENDERS[1]

YEAR	Delinquency Rate[2] All Lenders	Commercial Banks	Finance Companies	Savings and Loan Associations
1971	1.5	1.8	1.3	4.4
1972	2.5	2.4	2.3	6.5
1973	4.1	3.4	4.3	5.6
1974	3.8	4.5	3.1	7.2
1975	4.8	3.8	5.6	4.7
1976	4.0	3.4	4.4	4.3

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[1] Manufactured Housing Institute, Manufactured Housing Financing, 25th and 26th Annual Surveys.

[2] Number of accounts delinquent 30 days or more, as per cent of number of accounts outstanding

TABLE 5

MEASURES OF SUPPLY CONSTRAINT IN MOBILE HOME FINANCING

Period	APR Finance Rates		Average Maturity (Fin. Cos.) 2/	Amount Financed Relative to Unit Retail Value 3/
	Bank Direct (84 mo. loans) 1/	Fin. Co. Indirect (All loans) 2/		
1972 - Q1	10.81%	12.57%	102.1 mo	85.1%
Q2	10.56	12.29	104.1	87.0
Q3	10.70	12.33	106.8	90.8
Q4	10.73	12.41	112.0	90.4
1973 - Q1	10.66	12.53	113.1	86.5
Q2	10.68	12.72	115.3	82.5
Q3	10.95	12.84	117.3	83.9
Q4	11.08	13.12	118.2	85.2
1974 - Q1	11.09	13.20	119.1	79.1
Q2	11.08	13.07	120.5	73.8
Q3	11.63	13.32	123.2	73.3
Q4	11.84	13.60	122.5	65.1
1975 - Q1	11.82	13.60	120.2	67.3
Q2	11.79	13.57	121.9	69.2
Q3	11.91	13.78	120.5	68.8
Q4	11.88	13.43	122.6	67.7
1976 - Q1	11.78	13.18	122.8	69.2
Q2	11.70	13.35	122.7	65.4
Q3	11.84	13.59	124.2	65.3
Q4	11.70	13.64	123.3	63.0
1977 - Q1	11.83	13.59	124.7	59.4
Q2	11.75	13.65	126.2	57.5
Q3	11.85	13.55	127.6	59.6
Q4	11.90	13.54	129.0	60.9

1/ From Federal Reserve Statistical Release G.10.

2/ From Federal Reserve Statistical Release E.10.

3/ Average amount financed from E.10 divided by Census Bureau series on unit value of mobile homes shipped.

BANKS PURCHASING MOBILE HOME PAPER FROM A DEALER SERVICE COMPANY 1/

	1972	1973	1974	1975	1976
Proportion of Banks	31.2%	27.3%	18.4%	12.3%	7.7%

1/ From American Bankers Association, Installment Credit Survey, 1975 and 1976.

Sources of Financing

It is likely that lenders are still cautious toward mobile home finance. Sluggish sales have probably done little to reinitiate creditor enthusiasm for this type of paper. Also, delinquency rates, while down from earlier peaks, still remain high compared to their pre-1974 levels (Table 3).

Mobile home credit outstanding continues to shrink at finance companies, and has increased only marginally at commercial banks over the past two years. S&Ls, seeking to diversify their mortgage-dominated portfolios, are the only lender group vigorously expanding its holdings of mobile home loans currently.

The shift in sources of mobile home finance is shown in Table 6. The increased penetration of S&Ls reflects their later entry into the market (legally prohibited until 1969), as well as their generally more limited options for deployment of funds and perhaps their greater expertise in most aspects of housing finance. Currently S&Ls are finding the financing of double-wide mobile homes particularly congenial to their traditional activities. In some cases, depending upon applicable State law, the purchase of a site is financed with the mobile home, and the whole package is handled as a mortgage of real property rather than as an installment loan.[11/]

In contrast, finance companies have been retreating from the market. Besides the delinquency and repossession problems finance companies suffered in common with other lenders, the sharp rise in their cost of short-term borrowing relative to mobile home finance rates during 1973 and 1974 lessened the attractiveness of this type of paper (Table 7). Further, in recent years finance companies have been acquiring relatively more business than consumer loans (Table 8).

TABLE 6

MOBILE HOME CREDIT EXTENDED DURING PERIOD BY MAJOR FINANCIAL INSTITUTIONS
(In millions of dollars, SAAR)

	All Lenders	Commercial Banks	Finance Companies	Savings & Loans	Credit Unions
1972 - Q1	1,376	855	308	191	21
Q2	1,434	897	314	201	23
Q3	1,538	951	347	223	17
Q3	1,635	1,014	361	238	22
1973 - Q1	1,772	1,104	394	247	27
Q2	1,713	1,046	396	247	24
Q3	1,767	1,165	372	230	23
Q4	1,791	1,113	428	227	23
1974 - Q1	1,673	1,037	393	222	21
Q2	1,606	955	394	232	24
Q3	1,358	812	334	187	26
Q4	1,172	704	257	188	23
1975 - Q1	1,048	646	191	186	25
Q2	1,038	637	183	193	26
Q3	1,071	640	184	213	34
Q4	1,185	718	209	221	37
1976 - Q1	1,296	844	184	226	42
Q2	1,167	735	178	215	39
Q3	1,172	725	166	242	39
Q4	1,234	798	162	242	32
1977 - Q1	1,200	718	159	275	48
Q2	1,315	804	156	307	48
Q3	1,357	795	161	355	45
Q4	1,381	851	175	305	51

Source: Federal Reserve Board.

TABLE 7

MOBILE HOME FINANCE RATE (APR) AT FINANCE COMPANIES COMPARED TO COST OF FUNDS -- COMMERCIAL PAPER RATE (CPR)

	1972		1973				1974				1975		
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
APR	12.3	12.4	12.5	12.7	12.8	13.1	13.2	13.1	13.3	13.6	13.6	13.6	13.8
CPR	4.9	5.3	6.3	7.5	9.9	9.0	8.3	10.5	11.5	9.1	6.6	5.9	6.7
Difference	7.4	7.1	6.2	5.2	2.9	4.1	4.9	2.6	1.8	4.5	7.0	7.7	7.1

TABLE 8

BUSINESS AND CONSUMER CREDIT OUTSTANDING AT FINANCE COMPANIES ($ BIL.)

	1972	1973	1974	1975	1976	1977
Business	27.4	32.3	37.2	29.3	44.7	55.1
Consumer	31.9	35.4	36.1	36.0	38.6	44.0
Ratio: B/C	.86	.91	1.03	1.09	1.16	1.25

TABLE 9

COST COMPARISON, MOBILE VS. SITE-BUILT HOMES
(Retail prices exclusive of land)

Price/Sq. ft.	1972	1973	1974	1975	1976	1977
Site-built	$15.50	$17.30	$18.90	$21.05	$22.35	$24.50
Mobile home	$ 8.73	$ 8.84	$10.63	$11.98	$13.09	$13.20
Ratio: site-built to mobile home	1.78	1.96	1.78	1.76	1.71	1.86

Note: Mobile home cost includes furniture, carpeting, appliances, etc. but does not include footing and other set up charges.
Data from Advance Mortgage Corporation, U.S. Housing Markets.

The Outlook for Mobile Homes

On balance, the considerations reviewed in this paper suggest that mobile home sales are likely to achieve only modest growth over the next several years, despite continuing favorable cost comparisons with site-built homes (Table 9). Comparative costs per square foot have been as favorable to mobile homes in the weak sales years of 1974-75 (and today) as in the strong years of 1972-73.[12/]

It is anticipated that builders of conventionally-built housing will continue to offer formidable competition in meeting the housing needs of young marrieds, retirees, and others with modest incomes. Moreover, possible innovations in mortgage finance--such as graduated payment mortgages may help to maintain or increase the relative affordability of conventional site-built homes.

The availability of credit for mobile homes will continue to be an important determinant of sales. Lender attitudes, of course, will be influenced by delinquency and repossession experience on mobile home paper. Delinquency rates on these loans, though remaining higher than on many other types of consumer paper, have decreased from recession levels (Table 3 and 4), a performance which is probably having a marginally positive effect on credit availability. Fundamental factors affecting sales demand will also influence lenders: favorable developments regarding zoning regulations,[13/] existence of desirable park space, and resale values of used units would tend to make lenders more willing to book mobile home loans. Major breakthroughs in these areas, however, do not appear imminent.

Beyond these general influences on the mobile home industry, lenders will be particularly affected by specific developments in credit markets. While some such factors may stimulate credit availability,[14] they seem more likely to discourage involvement in mobile home financing. For instance, growing consumer protection regulation, such as existing and proposed FTC regulations which sharply limit the "holder-in-due-course" protection by which lenders formerly could enforce credit contracts regardless of consumer dissatisfaction over the product or service involved, may reduce the attractiveness of mobile home lending.

A potentially broader influence on the attractiveness of mobile home lending is a possible shift towards actuarial computation of interest rebates on prepaid loans. The "Rule of 78's"--which boosts net yields on prepaid loans--is common at present, but pressure for actuarial computation is building. The State of Iowa, for example, now mandates the actuarial method, and in October 1977 HUD announced that the actuarial method must be applied to prepayment of FHA-insured mobile home loans. These and other pressures on mobile home loan profitability probably will inhibit lender enthusiasm for this type of finance during the next few years.

APPENDIX

This appendix presents statistics concerning mobile home ownership and related credit, developed from the 1977 Consumer Credit Survey conducted by the University of Michigan's Survey Research Center on behalf of the Federal Reserve Board, the Federal Deposit Insurance Corporation, and the Comptroller of the Currency. Of 2,563 households surveyed, 148 (or 5.8 percent) lived in mobile homes during the summer of 1971; 117 families owned the mobile home in which they lived, and 50 had loans outstanding on these units.

The tables here are related primarily to issues raised in the text and by no means exhaust the possible tabulations available from the survey responses. In particular, no information on demographic characteristics of mobile home owners is presented here. Such tabulations will be included in the Federal Reserve Board's forthcoming report on the Survey results.

The results in Tables A-1 and A-2 have some implications for the method by which the units financed series was created as a proxy for sales of new mobile homes. Table A-1 implies that a larger adjustment to remove used units from the sales estimate might be appropriate. Also, it may be incorrect to assume that relatively few sales are for cash, since loans were outstanding on less than half the owned units surveyed. Further adjustments for these two factors would tend to offset each other, however. A more accurate representation of used-unit sales would lower the estimate of new-unit sales, but adding in cash sales would raise the estimate.

In Table A-2 the mobile home ownership data are grouped by year of purchase. The data suggest that, at least since the mid-1970s, more mobile home units have been purchased used than new. It also provides additional evidence that a considerable number of units may have been purchased for cash: of 12 instances of new mobile homes purchased in 1976-77, half were owned debt free at the time of the survey in August of 1977.

Table A-3 provides data for mobile home owners' site rents and size of loan payments, as well as combined loan payment and site rent for those making loan payments. Table A-4 summarizes information on the original cost of owner-occupied mobile homes compared with the current value estimated by the survey respondents. While the owner estimates of current value are not necessarily reliable indications of actual current value, they do provide an interesting insight into the perceptions of mobile home owners. As the Table shows, a somewhat higher percentage perceive their mobile home to have declined in value since purchase than perceive an increase in value (several saw no change). In contrast, in this same survey, only four percent of respondents who owned a single-family conventionally-built home thought their home had decreased in value since purchase.

TABLE A-1

SELECTED STATISTICS ON MOBILE HOME OWNERSHIP FROM 1977 CONSUMER CREDIT SURVEY

	Number of Households	Per Cent of Total
OWN	117	79
RENT	23	16
OTHER	8	5
Total Living in MH	148	100
Total Households Surveyed	2,563	
Per Cent Living in MH	5.8	
Purchased New	51	44
Lived in Before	61	52
Not Ascertained	5	4
Total Owning MH	117	100
Existing Loan on Unit	50	43
No Loan	66	56
Not Ascertained	1	1
Total Owning MH	117	100
Original Loan	49	98
Refinanced Loan	1	2
Total with MH Debt	50	100

TABLE A-2

MOBILE HOME INDEBTEDNESS ON UNITS PURCHASED NEW AND USED BY YEAR OF PURCHASE

	Purchased before 1973		
	Loan	No Loan	Total
New	10	19	29
Used	1	15	16
Total	11	34	45

	Purchased 1973 to 1975		
	Loan	No Loan	Total
New	6	4	10
Used	10	11	21
Total	16	15	31

	Purchased 1976 or 1977		
	Loan	No Loan	Total
New	6	6	12
Used	14	9	23
Total	20	15	35

AVERAGE LOAN AND SITE RENT PAYMENTS

		Dollar Amount	
	Observations	Average	Range
Loan Payment - All Cases	48	113	43 to 208
Site Rent - All Cases	52	53	5 to 111
Loan Payment & Site Rent			
Make Both Payments	21	160	100 to 248
Including Site Rent = 0	47	132	43 to 248

TABLE A-4

COMPARISON OF ORIGINAL COST AND CURRENT VALUE

	Observations			Dollar Amount	
	Total	Plus	Minus	Average	Range
Cost at Purchase	108	--	--	7,289	500 to 18,590
Estimated Current Value[*]	108	--	--	7,702	800 to 25,000
Current Value Less Cost	103	36	48	348	-9,000 to 20,000

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[*] For households providing both cost and value estimates.

FOOTNOTES

[1] Data on site-built housing starts and mobile home shipments are reported monthly in Construction Report C-20, Housing Starts, by the Bureau of the Census.

[2] Data on mobile home credit outstanding, extended, and liquidated are published in the Board's monthly press release number G.19. Terms on finance company mobile home loans, including amount financed, APR finance rate, and average maturity are published in the quarterly E.10 statistical release.

[3] Undoubtedly some units are purchased for case--retired persons concurrently selling a larger home would usually be able to purchase with cash--but the customary mobile home purchaser would generally have inadequate resources to pay cash. Since few data are available on the proportion of cash sales, and in view of the approximate nature of other elements of the estimate, no adjustment for cash purchase was made.

[4] The used-units adjustment was a very rough one. It is based on estimates from a few mobile home lenders that about 15 to 20 percent of the total number of units financed are second-hand. Data from the 1977 Consumer Credit Survey (see Appendix) suggest that the proportion of used units in the total financed might be somewhat higher than the percentage used here.

[5] Finance company average contract amounts were estimated from data on average amount financed, average maturity and average finance rate published in the Federal Reserve's E.10 Statistical release. Annual data on commercial bank loan amounts was taken from the Installment Credit Surveys of the American Bankers Association; quarterly figures were estimated by interpolation.

[6] In the Federal Reserve's consumer credit statistics, a refinanced loan generally results in simultaneous increases in liquidation (in the amount of the old loan) and in extensions (in the amount of the new loan). An increase in refinancing activity, as might occur during an economic down swing, would thus tend to raise extensions further above the "true" level of new loan originations. It might be noted, however, that only one instance of a refinanced mobile home loan (out of 50 loans in force) was reported in the 1977 Consumer Credit Survey. (See Appendix)

[7] Many industry spokesmen assert that restrictive zoning is the major barrier to sales expansion.

[8] A representation [illegible] major finance company reported to the 1975 convention of the Manufactured Housing Institute that in 1972 "finance and service company competition was so intense that there were literally no rejects in mobile home financing."

FOOTNOTES (continued)

[9] This downtrend undoubtedly also reflects a shrinkage in the number of service companies operating--from 100 in 1972 to a dozen or so in 1975, by one estimate--and some banks may have continued to make direct mobile home loans while severing relations with service companies.

[10] Advance Mortgage Company estimated in U.S. Housing Markets, First Half 1977 that "half the buyers in ...1972-73 would not qualify for a loan today."

[11] This practice is generally believed to be increasing (which, incidently, would bias the sales estimates of Table 2 downward), but it accounts for a very small percentage of total units financed. It was recently reported (in Manufactured Housing Dealer, August 1978, p. 32) that Crocker National Bank has switched mobile home financing from its customer loan administration to its mortgage banking group. The report said that Crocker was the first major bank to shift mobile home financing from the installment loan to the real estate department.

[12] Some have argued that the favorable cost comparison of mobile homes to conventional homes is largely illusory. For example, see Philip Weitzman, "Mobile Homes: High Cost Housing in the Low Income Market," Journal of Economic Issues, September 1976, p. 576-97. Weitzman's argument hinges to some extent on differing finance costs, but it is based primarily on the assumption of far greater appreciation in value of site-built homes.

[13] For example, proposed legislation in California that would treat mobile homes as real rather than personal property could ameliorate the local zoning biases against mobile homes. Such changes, if they occur, could stimulate product demand and credit availability.

[14] Lenders would benefit from development and expansion of the secondary market for mobile home paper. A market for GNMA-guaranteed securities backed by FHA-insured mobile home loans has existed since 1972, but the market remains quite small.

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An Investigation of Sex Discrimination in Commercial Banks' Direct Consumer Lending

1979

Krannert Graduate School of Management – Purdue University

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AN INVESTIGATION OF SEX DISCRIMINATION IN COMMERCIAL BANKS' DIRECT CONSUMER LENDING

Richard L. Peterson, Purdue University

Abstract

In this paper, a model of consumer credit market discrimination, analogous to the best-known model of labor-market discrimination was developed and tested to determine if commercial banks behaved as profit-maximizers or discriminated against women before the Equal Credit Opportunity Act was passed. The model tested to see if women defaulted more or less frequently than men on direct bank loans or, once in default, caused greater or lesser losses for the bank. It also tested to see if women or men paid higher rates to obtain similar bank credit.

Statistical analysis showed that no sex-related differences existed either in the probability or amount of loan loss by sex. Further, for six of seven loan categories, no sex-related differences in loan rates were found. In the seventh category (household goods loans) men paid higher rates than women. Thus, the data are consistent with the profit-maximization, not the discrimination, hypothesis as it does not make sense for a profit-maximizing firm to discriminate.

These results suggest that thorough analysis is needed before additional laws are passed that assume firms are not profit-maximizers.

An Investigation of Sex Discrimination in Commercial Banks' Direct Consumer Lending

Richard L. Peterson*

I. Background

In 1974, the U.S. Congress enacted the Equal Credit Opportunity Act (ECOA) which, with subsequent amendments, was intended to eliminate discrimination in the granting of credit based upon a credit applicant's sex, marital status, age, race, national origin, religion, political affiliation, or receipt of welfare benefits. The driving force behind the enactment of ECOA was testimony presented before the National Commission on Consumer Finance (see [6], pp. 153-6, for a summary of that testimony) and the 93rd U.S. Congress [10, 11, 12]. That testimony presented largely anecdotal evidence that women were not treated on an equal basis with men in the credit markets, particularly in the mortgage credit markets. However, the cumulative effect of this testimony was to convince Congress, and even creditors themselves, that discrimination against women existed in the credit markets. For instance, the then President of the American Banking Association, Eugene Adams, was quoted in a reprinted speech ([1], p. 22, col. 3) as saying, "I think we have to acknowledge that banks, along with the rest of the credit industry, do in fact discriminate against women when it comes to granting credit. The question then becomes, is that discrimination justified?"[1]

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Clearly, unequal treatment of identically situated individuals constitutes "unjust" discrimination. Similarly, equal treatment of unequally situated individuals may also constitute "unjust" discrimination--unless information and transactions costs are sufficiently high relative to the significance of differences between people that creditors cannot profitably identify and treat different individuals independently. In the credit markets, however, as in the insurance markets, a certain amount of "just" discrimination must take place--based on each credit applicant's potential risk. Economically, such discrimination between good and bad risks is essential if a creditor wishes to avoid excessive credit losses. In this paper we note that discrimination is not "unjust" or "uneconomic" unless it systematically causes the expected present value of loans made to members of one group to exceed the expected present value of equivalent loans made to other groups.

The ECOA, as implemented through Regulation B of the Federal Reserve Board, has imposed significant compliance costs on creditors (see [3] and [9]). Also, by reducing the availability of information to credit grantors, ECOA has potentially diminished the efficiency of the entire credit granting process. Further, it has probably caused creditors to allocate credit to women less efficiently than in the past (see Chandler and Ewert [4]).[2]

At the time ECOA was enacted, only anecdotal evidence existed to suggest that sex-discrimination was a serious problem in the credit markets. By random chance, however, since markets do not always work perfectly, At present, congressional legislation is under consideration that would ban credit "discrimination" on the basis of residential location (96th Congress, 1st Session, S.15 and H.R. 3553) and occupation (H.R. 3553). Also, the Act could be extended further by pending regulatory interpretations. Such interpretations could apply "effects tests," developed in litigation involving job market discrimination to the credit markets. If so, the use of demographic information that is not explicitly banned by ECOA for use in credit evaluation, could be banned if it were found to be correlated with prohibited factors. Such interpretations potentially could extend the scope of the Act.

Finally, since ECOA has been enacted, there has been some uncertainty as to what practices are or are not considered discriminatory under the Act. Creditors are presently banned from using information in a way that has the "effect" of discriminating against one or another protected class of credit applicant--but credit "effects tests" are not well defined. The analysis presented in this paper provides a methodology that could be used to test for effective discrimination against any given "protected" group, provided that full information on credit applicants' sex and demographic characteristics were retained with all loan records.

II. Organization

The study is organized as follows. First, a model of credit market discrimination analogous to Becker's [2] model of job market discrimination is developed and its implications are derived. Second, it is argued that the discrimination model does not apply to banks, i.e., banks will not tend to discriminate. Finally, data on bank loans are used to test statistically whether the non-discrimination hypothesis, as the null hypothesis, should be rejected in favor of the alternative, credit discrimination, hypothesis.

III. A Model of Bank Credit Discrimination

In the absence of discrimination, we would expect a creditor to make any loan for which the expected present value, PV, was positive. However, if, prior to the enactment of ECOA, a lender were inclined to discriminate prejudicially, the expected present value that he would require to make a loan would be adjusted by a discrimination coefficient. This approach is analogous to Becker's model [2] of labor market discrimination where individuals who have a "taste to discriminate" adjust perceived prices or wages by a "discrimination coefficient." Thus, for a potential discriminator in the credit markets, the decision criterion for granting credit would be that the "adjusted present value," APV, be non-negative in order to grant a loan, where the APV is defined as follows:

(1) $APV_j^i = PV_j^i + DC_j^i = (1-p_j^i)\, G_j^i + p_j^i L_j^i + DC_j^i$ for all homogeneous types of bank consumer loans, j, and all borrower (sex) types, i, where

APV_j^i = the adjusted present value for loan type j made to borrower type i,

PV_j^i = the present value of loan type j to borrower type i,

DC_j^i = the discrimination coefficient for borrower type i on loan type j (DC will be negative if a borrower type is discriminated against),

p_j^i = the probability of default on loan type j by borrower type i,

G_j^i = the expected present value of the gain on loan type j made to borrower type i if no default occurs, and

L_j^i = the expected present value of a loss on loan type j made to borrower type i if a loss does occur.

The case for discrimination in the context of this model[3] rests on the assumption that DC_j^i is non-zero. The principal way this result can be explained is by assuming that bank loan officers, either because of ignorance or prejudice, do not treat borrowers of each sex equally when they apply for loans. In particular, supporters of ECOA argued that women had a more difficult time obtaining credit, had to face more embarrassing scrutiny (such as questions regarding their childbearing capacity), or encountered more restrictive collateral or cosigner requirements than would be the case for male borrowers.[4] It is not possible to determine statistically whether embarrassing questions are more frequently asked of women than of men during loan interviews. However, either the act of restricting credit to women or the requirement that women have stricter collateral or cosigner requirements than would otherwise be justified would affect the present value of loans made to females differently than the present value of loans made to males. Thus, by these arguments loans made to women and men are adjusted by different discrimination coefficients.

In particular, if bank loan officers systematically discriminated against females one would expect to find that $DC_j^f < 0 \leq DC_j^m$, where f refers to female and m to male borrowers. Since a loan will not be made unless its expected present value to the lender is non-negative, this implies that, on equivalent loans of type j, female borrowers will have to compensate for their negative discrimination coefficient (DC_j^f) by showing promise that (i) $L_j^f < L_j^m$, (ii) $p_j^f < p_j^m$, or (iii) $G_j^f > G_j^m$.

Banks may influence L_j^f and L_j^m, the magnitude of credit loss once a borrower defaults, by adjusting downpayment, loan maturity, collateral, or cosigner requirements. More restrictive downpayment, maturity, collateral, and cosigner requirements also tend to decrease a borrower's probability of default. Banks can adjust the probability of default in their loan portfolios with even greater precision by rejecting credit applicants who appear more likely to default than others. Thus, a bank loan officer who discriminated against women probably would adjust his behavior so that $p_j^f < p_j^m$ and, possibly, $L_j^f < L_j^m$ as well. Alternatively, a loan officer who was inclined to discriminate might raise rates charged on loans to females so that $G_j^f > G_j^m$. If credit rationing were widespread, many women would likely pay the premium rates in order to obtain credit rather than spending resources searching for a rate closer to G_j^m from another lender.

Thus, if lenders discriminated on the basis of sex, one would expect to find systematic evidence that $G_j^f \neq G_j^m$, $L_j^f \neq L_j^m$, or $p_j^f \neq p_j^m$ in a manner consistent with one of the discriminatory patterns shown in Figure 1. In Figure 1, loan risk, as measured by both p_j^m vs. p_j^f and L_j^m vs. L_j^f is shown on one axis because factors that affect the potential loss on a loan (L) generally will also affect the probability of loss (p)--since most factors that reduce the potential loss to the bank and, concomitantly, increase the potential loss to the consumer from defaulting also reduce the probability that a consumer will ultimately default.

However, credit markets differ from the work environment that Becker [2] envisioned, where contact between prejudicially discriminating parties and recipients of discrimination is frequent. In the credit market the usual contact between the lender (the potential discriminator) and the borrower is limited to the brief period when the loan application is made. Thus, discrimination resulting from employees' aversion to contact with members of another group is likely to be much lower in a credit transaction than in a work environment. Further, banks generally are not sole proprietorships, (where part of the proprietor's returns could potentially be taken in utility derived from discriminating). Bank loan officers typically are supervised by profit-oriented managements that oversee loan officers' performance. They expect their loan officers to generate and maintain loan portfolios that do not generate excessive losses relative to their yields. Bank managements also generally constrain loan officers with regard to the rates and terms that they may negotiate on loans of a given type and maturity.

In such an environment, it does not appear likely that bank loan officers would systematically discriminate against females. Even if they were inclined to do so, they would have trouble justifying rejections of loan applications from good credit risk females--for, regardless of the sex of the borrower, good loans would raise the performance record of the portfolio for which each loan officer was responsible. Even if a loan officer were inclined to discriminate, profit maximizing behavior would call for management to induce loan officers to negotiate and grant all loans possible for which $PV \geq 0$, and to behave as if $DC^f = DC^m = 0$ when doing so.[5]

Thus, in this study we take as our null hypothesis that $DC_j^f = DC_j^m = 0$ for all loan types j. To support the alternative hypothesis, one must find empirical evidence to support one of the discriminatory lending patterns summarized in Figure 1.

IV. Empirical Tests

In this study, empirical tests were conducted to determine if there were any significant sex-related differences in (i) the ratio of losses to the amount of loans (L_j), (ii) the probability of loss (p_j), and

(iii) rates of charge (G_j) on (otherwise similar) direct bank consumer loans that were consistent with the various possible patterns of discrimination described in Figure 1.[6] Seven major types of direct loans were considered--auto loans secured by new cars, auto loans secured by used cars, other auto loans, loans to purchase household goods, home improvement loans, debt consolidation loans and all other consumer loans (except those used for business purposes or to purchase a plane, boat, or mobile home)--as well as the total for all the aforementioned categories.

The data used in the study were obtained from 30 banks in five regions of the country. Each sample region consisted of a major metropolitan area plus surrounding environs. The data were collected by the Federal Reserve System over the period 1966-71. In the Federal Reserve Survey, sample banks reported thorough information on the loan characteristics and the socio-economic characteristics of the borrower on 100 percent of their charged-off loans and on randomly-selected samples of ten percent of their paid-off and new loans. Because the purpose of the Federal Reserve study was to investigate cyclical changes in credit availability, and sex-discrimination in lending was not an issue at the time the data were collected, it was not felt likely that the data would be biased in any manner that would affect studies of sex discrimination in bank lending.

The Federal Reserve data included information on indirect loans (loans made by dealers and purchased by banks) in addition to data on loans made directly by banks. Because returns to dealers can vary with profits on goods sold as well as with credit terms, and dealers often set some or all terms on indirect credit contracts, all data on indirect loans were excluded from this study. Tests conducted on the Federal Reserve data are described below.

A. Tests for differences in loss ratios by sex (H_o: $L^f_j = L^m_m$ vs. H_A: $L^f_j \neq L^m_j$)

The sample of charged-off bank loans included approximately 9,000 observations. However, a majority of those observations related to indirect loans rather than loans made directly by the bank to credit applicants. In addition, some loan records lacked information on the sex of borrower, loan type, amount of loan, or amount of loan charged-off. All such loans were eliminated from the sample. Finally to eliminate loan records containing possibly erroneous data, a small number of loans (less than 100) were filtered out of the sample because the amount charged-off exceeded the amount of funds advanced by the bank by 25 percent or more. A 25 percent leeway was used in the edit standard because some banks also sell insurance on consumer loans or record interest charges incurred during delinquency periods as balances due when the loan is ultimately charged-off. Thus, it is conceivable that the amount charged-off could exceed the initial amount of the loan by a small amount. After eliminating indirect loans and all direct loans with bad or missing data, approximately 3,000 loans remained in the sample.

The ratio of the amount charged-off to the amount of loan (as measured by the amount of money disbursed by the bank) was tabulated for each of the loan types studied plus all bank direct consumer loans for both males and females. The results of those tallies are shown in Table 1. They are presented in two forms. On the left they are presented as averages of charge-off/loan amount ratios for each of the various types of loan. In particular, for all N_j loans of type j, if CO_{ij} equals the amount charged-off and L_{ij} equals the amount of loan for each loan i, the left-hand side statistics are calculated as $[\sum_i \frac{CO_{ij}}{L_{ij}}]/N_j$.

On the right, the loan-loss ratios are calculated as $\sum_i CO_{ij}/\sum_i L_{ij}$ for each loan type j. Thus those statistics measure average values of total charge-offs for each sex and loan type relative to the total value of loans in each sex and loan type category. Standard deviations were constructed for each statistic and used in t-tests to determine if there were significant differences in mean charge-off rates for loans made to males versus loans made to females. In the left hand columns, variances and standard deviations were calculated on a per loan basis. In the right-hand columns, variances and standard deviations were calculated on a per dollar of loan extensions basis (i.e., in calculating standard deviations the loss ratio for the kth loan was weighted by $L_{kj}/\sum_i L_{ij}$, or the size of the loan relative to the total value of all loans in that loan category).

The statistics presented in Table 1 show that charge-off-to-loan-value ratios for males and females are practically identical. Further, even where they are substantially different, as is the case with home improvement loans, the variance in charge-off ratios is sufficiently great that no difference (as measured by t-statistics) is even close to being significant. Thus, these tests provide no evidence that the null hypothesis $H_0: L_j^f = L_j^m$ should be rejected either for any major type of direct bank consumer loan or for direct bank consumer loans in general.

B. Tests for Differences in Credit Availability by Sex ($H_0: p_j^f = p_j^m$ vs. $H_A: p_j^f \neq p_j^m$)

These tests are based on the assumption that the best credit applicants of either sex will get credit because of management review of loan officers and their loan portfolios. This assumption rules out the possibility that loan officers discriminate against members of one sex on a purely random basis. For instance, if every tenth applicant of a sex were rejected regardless of their credit qualifications, such random discrimination would be undetectable given the tests described in this section. However, by assuming that management oversight and protfolio profit maximization incentives will induce loan officers to grant loans to the best credit risk applicants (with positive APVs) regardless of sex, purely random discrimination would not be possible.

Nonetheless, if top credit risk customers of both sexes received credit, a loan officer with a taste for prejudicial discrimination would grant loans less freely to marginal risk credit applicants against whom he was inclined to discriminate. That is, if a loan's PV were small, the APV could more easily (and less conspicuously) be negative. Further, as the PV became smaller due to higher risk, for a given discrimination coefficient, the probability of rejection would rise with the risk of the loan. As a result, if bank loan officers were to limit credit to only the best credit applicants of one sex, while giving preferential treatment to borderline credit applicants of the other sex, one would expect to find that the probability of default was significantly lower for borrowers of the sex discriminated against than for borrowers of the favored sex.

Systematic discrimination of this type would imply that the proportion of members of the sex discriminated against will be higher among a sample of all "good" loans than among a sample of "bad" loans made by commercial banks. If such a result were to be found, it would be tantamount to showing that the probability of default was lower for accepted members of the less-favored group than for those of the more favored group (see Peterson and Peterson [8] for a proof of this proposition).

In the subsequent analysis, data from the Federal Reserve samples of charged-off and paid-off bank consumer loans were used. The 100 percent sample of charged-off bank direct loans contained nearly 3000 observations. The sample of good paid-off bank direct loans contained approximately 12,000 observations. Exact default probabilities could not be calculated from these samples because they were collected independently (with good loans sampled with approximately a one-tenth chance and all bad loans sampled). However, it is possible to test whether loans to either sex were disproportionately represented in either sample. If either sex were discriminated against, one would expect the percentage representation of that sex in the sample of charged-off loans to be lower than its percentage representation in the sample of good paid-off loans.

Table 2 presents the results of such an analysis for each type of consumer loan considered. For both the good and bad loan samples, the number of loans made to males and females are tabulated and the proportions of loans made to males is recorded. The right hand column presents t-statistics that can be used to test for the significance of differences in the proportions of loans made to males (or females, with a change in sign) in the two samples. The t-statistics were calculated on the assumption that for relatively large numbers of observations (see Ostle [7], pp. 76-78) a binomial distribution can be approximated by a normal distribution.

Analysis of the t-statistics and of the proportions of males and females represented among all "good" and charged-off direct bank consumer loans recorded in Table 2 shows that no significant differences (at the 95 percent, two-tailed level) exists in the proportionate representation

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Analysis of the t-statistics and of the proportions of males and females represented among all "good" and charged-off direct bank consumer loans recorded in Table 2 shows that no significant differences (at the 95 percent, two-tailed level) exists in the proportionate representation of each sex either for any particular type of consumer loan or for all bank direct consumer loans in total.[7/] Thus, these results are consistent with the assertion that the credit quality of accepted female applicants was no better, or worse, than that of accepted male applicants. More precisely, these results are consistent with the null hypothesis that for direct bank consumer loans, $p_j^f = p_j^m$ for all j.

C. Tests of Differences in Returns (Loan Rates) by Sex (H_o: $G_j^m = G_j^f$ vs. H_A: $G_j^m \neq G_j^f$)

Sample banks reported very detailed information on the type of loan, loan characteristics, and socio-economic characteristics of borrowers on a random sample of ten percent of all new consumer loans that they made while participating in the study. Reported information included data on the amount of the loan, the number and amount of monthly payments, and the amount of the final payment. That information was then used to calculate the nominal rate of return on the loan, assuming that all data were correct and the loan was repaid as scheduled.

Detailed information on borrowers' demographic characteristics and loan characteristics was less readily available on paid-off than new loans, particularly at some banks. This was so because many banks did not collect all the requested information until after the survey started, and loans were paid-off only several years later (often after the bank had been rotated out of the sample or the study was discontinued). Thus, data on new loans rather than data on paid-off loans, were used to test whether loan rates charged males and females were the same on similar types of loans. This procedure also eliminated any secular bias that could have occurred if loans made to males and females were differentially made at points in time when interest rates were high or low.

In order to eliminate incorrectly calculated rates resulting from erroneous data all loans with the following characteristics were eliminated from the sample of new loans: (i) loans with inadequate information to compute loan rates, (ii) loans with calculated rates below three percent or above 51 percent (as such figures were assumed to be either unrealistically low or high, possibly because of incorrect data), and (iii) loans for any maturity that was not an even multiple of six months. The last edit standard was imposed because some banks record three-year loans as 37-month loans, yet their loan rate, in fact, should be calculated in the same manner as for 36-month loans. Further, loans with mispunched data, such as 24-month loans, might be erroneously reported as 34-month loans, with attendent miscalculations in loan rates. Finally, as in the preceding analyses, indirect loans (loans purchased from dealers, who, in turn, set customer loan rates) were also excluded from the sample.

When this process was completed, approximately 13,500 new bank direct loans remained in the sample. These were divided in half by taking every other one. The first half of the sample was used to experiment with alternative specifications that could be used to explain the manner in which loan terms and differences in socio-economic characteristics affected bank loan rates. The second half of the sample was held back and used only to generate the final regression results reported in Table 3.

Four basic models of the determinants of bank loan rates were tested. First, for each major type of consumer loan, the loan rate was regressed solely upon the sex of the borrower. In this construction, Model 1, any differences in loan rates related to differences in loan amounts, maturities, collateral, income, or other attributes potentially related to a borrower's sex would be reflected in the sex coefficient. Thus, this test would be most likely to show a sex-related difference in loan rates even if such a result might be spurious. For instance, women have lower average incomes than men. As a result, they may obtain smaller loans. Since rates tend to be higher on smaller loans, a significant rate difference might reflect differences in job market opportunities and loan sizes by sex, rather than credit discrimination per se.

The second model for loan rate determination used all objective factors relating to the terms of a loan (its size, maturity, collateral, year and metropolitan region in which it was originated, trade-in, cosigner, and downpayment requirements) in addition to a sex-related dummy variable in an attempt to determine bank loan rates. This model was designed to test whether members of one sex paid more or less to borrow once all objective factors related to the characteristics of the loan had been taken into account. This model excluded all socio-economic data related to the borrower except for the single variable, sex.

As a variation of the second model, the third model recognized certain cross-elasticity of demand considerations exist that might affect loan rates in addition to the objective factors related to a loan. Such factors, which frequently are taken into account by banks in establishing their loan policies, include: (i) whether a loan customer is a depositor of the bank, (ii) whether the loan customer is an employee of the bank, and (iii) whether a loan customer has engaged in previous financial transactions with the bank. In general, one would expect rates to be lower if any of these circumstances existed. Reportedly, many banks give preferred loan terms to depositors and customers, while less uncertainty would exist about the potential credit performance of previous customers.

The final model, Model 4, used all available socio-economic information, including data on the borrower's sex, age, occupation, employment source, job longevity, address stability, marital status, number of dependents, home ownership, phone ownership, debt ratio, income, and credit references in addition to all independent variables used in Models 2 and 3 in order to explain bank loan rates. In this model it was felt that possible colinearity among variables would tend to reduce the significance of the sex-related dummy variable. Hence, were that variable to remain significant in Model 4, it would provide strong evidence that the sex-variable was significantly related to rates charged by banks on new loans. Table 3 summarizes the results of these tests for all major types of consumer loans.[8]

The data summarized in Table 3 show that in only one case, household goods loans, was the sex variable significant in both the weakest (Model 1) and the strongest (Model 4) tests of its impact on loan rates. The negative sign of the sex variable (which equalled one for loans made to females) indicates that women paid significantly less for household goods credit at banks than men. Hence, if anything, it shows rate discrimination against men. In all other cases--with the sole exception of Model 2 for the "all other" loan category, where women again paid less--there was no significant difference between rates charged males and females on any type of consumer loan in any of the models tested.

Overall, the results of our tests show that the null hypothesis (H_o: $G_j^m = G_j^f$) is rejected for only one of seven types of consumer loans. That type was household goods loans, for which men apparently paid significantly higher rates than women. This finding could have resulted from a loan composition problem. For instance, men may typically purchase different types of household goods on credit than women, and rates may vary with the types of goods financed. However, insufficient information exists to test this hypothesis.

V. Summary and Conclusions

Data on 3,000 charged-off, 12,000 good paid-off, and 13,500 new bank direct consumer loans were analyzed to see if commercial banks systematically discriminated against one sex or another in granting consumer credit by (i) over-securing loans, thereby reducing loss ratios and probabilities, (ii) credit-rationing to reduce loss probabilities, or (iii) charging higher rates to certain borrowers based on sex. In every case but one, the profit-maximization (null) hypothesis that commercial banks did not discriminate on the basis of sex was supported by the empirical evidence. The sole exception involved rates paid on household goods loans, where males apparently paid higher rates than females.

Overall, these findings provide strong evidence that, prior to enactment of ECOA, commercial banks did not systematically discriminate against potential borrowers based upon their sex. If women found it more difficult than men to obtain credit, the root cause apparently was not due to prejudicial credit rationing, as was frequently alleged.

Since this study indicated that bankers' present value calculations on consumer loans apparently were not biased by a "taste for discrimination," if women in general (and not just outlying observations drawn selectively from the credit-experience distribution) found it more difficult than men to obtain credit, that fact would have to be ascribed to socio-economic differences in job stability and renumeration and child-care responsibilities that affect the relative probability of default of men vs. women, rather than by bankers' tastes for credit discrimination, per se.

These findings are important because they suggest that legislation based on anecdotal evidence may well be misdirected. That is particularly likely to be the case if the legislation is based on the premise (as both ECOA and proposed extensions to ECOA are) that firms are not profit maximizing institutions.

If the assumption underlying a legislative proposal is that firms are not profit maximizers,[9] these results suggest that careful statistical studies should be conducted to highlight actual problem areas in detail before the legislation is enacted. For instance, before ECOA was enacted it was alleged that offensive and unequal treatment of women in the consumer credit application and record-keeping process systematically occurred. If so, such behavior most likely was severely reduced by sanctions imposed by ECOA. Thus, aspects of ECOA that were designed to remove arbitrary and unequal treatment in the consumer credit markets could be well justified if the practices they remedied (including a failure of creditors to allow married women to obtain or maintain credit and credit records in their own name, or creditors' probing of one sex of borrower, but not the other, with sensitive questions--such as questions relating to the fertility of potential women borrowers) were sufficiently widespread and socially reprehensive as to justify the costs of regulation. However, this study suggests that aspects of ECOA that were intended to stop credit discrimination against women were unnecessary--as prejudicial discrimination did not exist in bank consumer credit markets.

FOOTNOTES

[1] This quotation reflects a semantic confusion that ran throughout the hearings and regulatory proceedings associated with ECOA. Creditors must by their very nature "discriminate" between good and bad credit risks. It is conceivable that credit "discrimination" would fall disproportionately on one sex if that sex were more adversely situated in the job market or exhibited poorer financial payment performance in general. In the context of our model, such "discrimination" could be "rational" and nonprejudical discrimination if it merely reflected underlying reality that affected sex-related default probabilities. In contrast, "prejudicial" discrimination would be evidenced by those who altered their economic behavior because they acted as if they received an economic gain from exhibiting a "taste for discrimination" that did not reflect purely objective factors. Unfortunately, in the testimony preceding enactment of ECOA, the distinction between rational and irrational discrimination was not finely made. Thus, allegations were often made, as in Adam's speech [1], that creditors "discriminated against" women in the granting of credit, even when the basis for such discrimination might have been "economic" rather than "prejudicial."

The ECOA tried to resolve this issue by stating that its purpose was to make credit available to all "creditworthy" borrowers without regard to sex or marital status. Such terminology could have justified the banning of only "prejudicial" discrimination without implying that the credit markets should provide a subsidy to protected classes of individuals to compensate for possible job or social discrimination that affected default probabilities. When this distinction was pointed out to the initial drafters of Regulation B (by the author, among others) they chose to ignore it. As a result, a case can be made that ECOA , as implemented by Regulation B, interferes with the making of efficient credit judgments, with an attendent loss in economic efficiency because it bans the collection of information that might be helpful in making rational credit judgments (see Chandler and Ewert [4]).

[2] A number of the costs imposed under ECOA were necessary in order to remedy unequal, and often offensive, treatment of women by some creditors (more quickly than the market would have done -- as most complainants cited in the hearings indicated that they would no longer do business with the offensive creditor). In particular, the provision of dual credit records, upon request, for married men and women provides a symmatric treatment that previously was lacking. Similarly, women often suffered inequities relative to men because changes in their marital status often induced changes in creditor policies because of their change in name--whereas, men were not affected similarly because their name did not change with their marital status.

[3] Note that the "taste for discrimination" factor in this model reflects purely "prejudicial" discrimination--as defined in footnote 1. One sex could still be "rationally" discriminated against, in the sense that a lower proportion of credit applicants from that group would obtain credit if a higher proportion of its members had elevated default probabilities. As a result the expected value of loans made to them (at interest rates equivalent to those offered the other sex) would be negative unless the riskier members of that group were denied credit.

FOOTNOTES (continued)

[4] Supporters of ECOA, in testimony before Congress and the National Commission on Consumer Finance, alleged that women had more difficulty than men in obtaining or maintaining credit, more frequently were asked embarrassing questions when applying for credit, and more frequently were required to have cosigners or extra collateral. Gates [5] provides an excellent discussion of the case for ECOA. The National Commission on Consumer Finance reports on a small case study where unequal cosigner requirements were imposed ([6], p. 153), and much testimony presented to Congress [10], [11], [12] cites cases of unequal treatment of males and females in the credit market.

[5] Prior to ECOA, only if a loan officer were willing to take a reduction in pay would a profit-oriented management be willing to tolerate subpar portfolio performance caused by the loan officer's discriminating actions.

[6] This analysis differs significantly from an earlier analysis of the same data base conducted by Peterson and Peterson [8] in that (i) it emphasizes only bank *direct* loans, where all loan terms and the availability of credit are determined solely *by the bank*, and excludes consideration of "indirect" bank loans, where loan contracts, and their terms, are generated by dealers (who may expect to receive a portion of their gain through the profits on sales of goods rather than through finance charges *per se*) and sold to the bank, (ii) it provides a thorough analysis of loan rate data, which previously were not available, and (iii) it uses and analyzes a much more comprehensive set of data on loan losses and charge-offs than was previously available.

[7] To achieve a 95 percent confidence level that no one of n simultaneous tests is statistically significant, the confidence level for each individual test should be set at x so that $x^n = .95$. In this case, no adjustment of this sort was necessary because not even one of the individual tests was, *prima facia*, significant at the 95 percent (two-tailed) confidence level.

[8] Greater detail on these regressions can be obtained from the author upon request.

[9] In the case of commercial banks, it is often alleged that they are insulated from competition by regulators who do not wish them to fail. Thus, they can afford to discriminate prejudicially if they wish. However, regardless of whether they operate in competitive markets or not, it is *not* in their interest as profit-maximizers to discriminate.

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Figure 1: Possible Patterns of Discrimination

Conditions	$L_j^f < L_j^m$ or $p_j^f < p_j^m$	$L_j^f = L_j^m$ and $p_j^f = p_j^m$	$L_j^f > L_j^m$ or $p_j^f > p_j^m$
$G_j^f > G_j^m$	I: Strong Discrimination Against Females	II: Discrimination Against Females on the basis of rates but not on the basis of credit availability, collateral, or cosigner requirements.	III: Ambiguous Case: Higher rates paid by females may merely compensate for higher risks of loss on their loans.
$G_j^f = G_j^m$	IV: Discrimination Against Females on the basis of credit availability, collateral, or cosigner requirements, but not on rates.	V: No Evidence of Discrimination	VI: Discrimination Against Males on the basis of credit availability, collateral, or cosigner requirements, but not on rates.
$G_j^f < G_j^m$	VII: Ambiguous Case: Lower rates paid by females may counterbalance lower risks of loss on loans made to them.	VIII: Discrimination Against Males on the basis of rates but not on the basis of credit availability, collateral, or cosignor requirements.	IX: Strong Discrimination Against Males

Table 1: Charge-off Ratios and Standard Deviations by Sex and Type of Loan, for Bank Direct Consumer Loans

Type of loan	Number of loans, charged-off ratios and (standard deviations) based on numbers		Differences and (t-test value)	Number of loans, charged-off ratios and (standard deviations) based on amounts		Differences and (t-test value)
	Males	Females		Males	Females	
New auto secured loan	136 .400 (.276)	24 .350 (.287)	.050 (.126)	136 .388 (.274)	24 .372 (.302)	.016 (.039)
Used auto secured loan	387 .484 (.295)	45 .462 (.287)	.022 (.053)	387 .461 (.289)	45 .421 (.274)	.040 (.100)
Other auto loans	67 .656 (.344)	9 .632 (.333)	.024 (.050)	67 .610 (.367)	9 .575 (.299)	.035 (.074)
Household goods loans	119 .630 (.306)	13 .646 (.326)	-.016 (-.036)	119 .623 (.315)	13 .579 (.318)	.044 (.098)
Home improvement loans	153 .437 (.348)	7 .628 (.367)	-.191 (-.378)	153 .411 (.345)	7 .525 (.391)	-11.4 (-.218)
Debt consolidation loans	512 .640 (.322)	75 .665 (.328)	-.025 (-.054)	512 .640 (.317)	75 .631 (.359)	.009 (.019)
All other consumer loans (except plane, boat, mob. home and business loans	1018 .666 (.328)	141 .627 (.325)	-.039 (.084)	1018 .681 (.337)	141 .641 (.348)	.040 (.083)
All bank direct loans	2475 .599 (.332)	328 .601 (.330)	-.002 (-.004)	2475 .565 (.336)	328 .539 (.349)	.026 (0.054)

Table 2: Performance on Bank Loans by Sex

Type of loan	Good loans			Charged-off loans			t-Test for differences in percentages
	# Male	# Female	% Male	# Male	# Female	% Male	
New auto	1,717	184	90.3%	141	25	84.9%	+1.88
Used auto	1,579	171	90.2	408	49	89.3	.59
Other auto	388	45	89.6	75[+]	11[+]	87.2	.61[+]
Total auto	3,684	400	90.2	624	85	88.0	+1.68
Furn & appliances	622	74	89.4	118	13	90.1	- .25
Radio,TV,HiFi	125	14	89.9	12[+]	1[+]	92.3	- .29[+]
Total household goods	747	88	89.5	130	14	90.3	- .30
Home improvement	1,236	116	91.4	179	10	94.7	-1.83
Consolidate bills	1,425	211	87.1	561	77	87.9	- .54
All other (except plane, boat, mobile home, and business loans)	3,378	550	86.0	1,057	151	87.5	-1.36
Grand total	10,470	1,365	88.5	2,551	337	88.3	.20

[+] In these cases, insufficient observations exist for the normal approximation to be reliable. In particular, Ostle ([7], p. 78) notes that "we should realize that, for a given n, the normal curve gives a better approximation when p is close to 1/2 than when p is close to 0 or 1. On the other hand, if n is large enough (say 100 or more), the [normal] approximation will be satisfactory for most values of p." Ostle goes on to note that,when the sample size exceeds 100, only when p is very close to 0 or 1, as in "reliability work," the normal approximation may not be satisfactory.

Table 3: Significance of Sex Variable in Explaining Bank Direct Loan rates (When Differing Amounts of Data on Loan and Borrower Characteristics are Taken into Account)+

Type of loan	Number of loans	Coefficient for "female" variable			Full regression characteristics			
		Value	Standard error	(1- significance) based on partial F	R^2	$\bar{R}^2$	F	(1- significance) of F value
New auto	1171							
Model 1		- .51	.23	.069	.003	.002	3.31	.069
Model 2		- .45	.28	.100	.074	.056	3.99	.000*
Model 3		- .26	.28	.346	.095	.074	4.60	.000*
Model 4		- .48	.32	.137	.156	.113	3.60	.000*
Used auto	1084							
Model 1		.18	.40	.656	.000	.000	0.20	.656
Model 2		- .01	.38	.977	.110	.090	5.68	.000*
Model 3		.14	.39	.712	.119	.097	5.47	.000*
Model 4		.08	.47	.857	.177	.131	3.86	.000*
Other auto	253							
Model 1		- .35	.91	.703	.001	.000	0.15	.703
Model 2		-1.32	.88	.133	.288	.201	3.51	.000*
Model 3		-1.17	.87	.182	.312	.223	3.49	.000*
Model 4		-1.16	1.11	.297	.445	.276	2.62	.000*
Household goods	407							
Model 1		-2.04	.65	.002*	.023	.021	9.68	.002*
Model 2		-2.51	.62	.000*	.232	.179	4.41	.000*
Model 3		-2.21	.64	.001*	.248	.190	4.29	.000*
Model 4		-2.75	.80	.001*	.356	.244	3.18	.000*
Home improvement	708							
Model 1		.72	.50	.145	.003	.002	2.13	.145
Model 2		.28	.47	.551	.239	.211	8.56	.000*
Model 3		.32	.47	.497	.251	.220	8.11	.000*
Model 4		.48	.61	.430	.284	.219	4.36	.000*
Debt consolidadation	830							
Model 1		- .22	.38	.559	.000	.000	0.34	.559
Model 2		- .29	.36	.432	.150	.123	5.45	.000*
Model 3		- .15	.36	.678	.164	.134	5.42	.000*
Model 4		.21	.47	.649	.222	.161	3.65	.000*
All other loans++	2235							
Model 1		- .26	.31	.389	.000	.000	0.74	.389
Model 2		- .55	.30	.031*	.091	.080	8.20	.000*
Model 3		- .49	.30	.103	.098	.086	7.96	.000*
Model 4		- .63	.37	.093	.129	.105	5.28	.000*

Continued on next page

Table 3: Continued

+Model 1 used only sex as an independent variable.

Model 2 used sex, the amount and term to maturity of the loan, information on trade-in and downpayment values and the nature of collateral used on a loan, information on whether there was a cosigner on the note, and data on the year and region of the country in which the loan was made as independent variables.

Model 3 was identical to Model 2 except it added three independent variables that could be associated with joint-product considerations that could affect loan pricing. In particular, it included
(i) a variable that indicated if consumers either did not have, or the bank did not know if they had, checking and savings accounts--as often banks give preferred rates to their own depositors,
(ii) a variable that indicated if the borrower were employed in "banking, finance, or real estate," as often banks give preferred rates to their own employees, and
(iii) a variable that indicated if the borrower had borrowed at the bank before, as that fact could reflect an ongoing relationship that could affect the loan rate.
Model 3 therefore, included all objective factors related to the nature of the loan that conceivably could affect loan rates.

Model 4 was identical to Model 3, but also included fairly complete socio-economic information on the borrowers--including data on occupation, source of employment, marital status, dependents, income, debt-to-income ratio, years-on-the-job, years-at-current-address, and credit references. In addition, it included home ownership and phone ownership data--as such information is often used in credit scoring models.

++"All other" consumer loans, include other loans made by bank consumer loan departments with the exception of loans made to purchase "planes, boats, or mobile homes" or "business" loans.

*Significant at the 95 percent (two-tailed) confidence level.

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THE TRANSFER IMPLICATIONS OF CONSUMER CREDIT REGULATION

William C. Dunkelberg*

Abstract

The thesis of this paper is that the regulation of consumer credit results in the transfer of income and wealth among groups of consumers. The paper focuses on rate ceilings and creditors' remedies and identifies and measures a series of related regulatory-induced transfers.

The author observes that consumers as savers are the ultimate source of funds to be lent to other consumers as well as to government and business. A credit union provides a simple example. In this context, it is easy to see that effective lending rate ceilings lower the return that lenders (consumers) can ultimately earn on their savings. Rate ceilings also determine which consumers can economically be served by the lending institution. Consumers who can still qualify for credit at a low regulated price benefit, while those who cannot qualify are forced to find more expensive credit or do without credit services. That denial of credit can cost the consumer money, is documented by an example of the value of financing a washer and dryer, even at rates as high as 40 percent. Loss of access to credit can impose significant economic losses on consumers, especially during periods of rapid inflation.

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Bad debt losses must also be borne by the suppliers of funds--usually in the form of a lower rate of return. These losses are "transfers" of wealth or income to borrowers from consumers providing funds. Even cash customers may be subsidizing the use of credit by some consumers, when the revenues generated by a retail credit card program are not sufficient to cover all the costs associated with the program. Then, the deficiency is covered in the price of merchandise, and paid by all customers, whether credit is used or not. Among credit card users, those who pay no finance charges are also subsidized. Although this subsidy is not directly enforced by regulation, legislators have proposed making it mandatory by requiring "free periods" for the payment of credit card obligations.

The paper identifies quantitatively the effects of rate ceilings and limitations on creditors' remedies by developing many examples of regulatory effects. Credit card use is restricted in low rate-ceiling states, with a lower proportion of consumers having cards. In some states, regulations have eliminated certain segments of the market (consumer finance companies in Maine and Arkansas for example). Low rate ceilings in Washington resulted in higher bankcard merchant discounts, a cost borne by retail cash customers as well as credit users. A study by the Credit Research Center showed that over the 1973-75 period, merchant discounts made up 28 percent of Washington bank credit card revenues, compared to 14 percent for California banks. Low rate ceilings also induce larger deficiencies in retail credit card operations, causing the cash customer to subsidize credit card use. Using data on California retailers, the paper estimates that a lowering of the ceiling rate from 18 percent to 12 percent could be offset by an average increase of .6 percent in merchandise prices.

Transfers due to bad debt losses amounted to about $2 billion in 1976. Not all of this amount was due to regulation, since it is not economical to collect 100 percent of all delinquent accounts. But regulatory restrictions increase the size of this transfer by increasing the cost of collecting debts. Interestingly, about 60 percent of the losses were "received by" the lowest 25 percent of the income distribution of credit card users. Many losses result from consumer inability to repay due to job loss, accident, illness or other unexpected events. Thus, "transfers" in the form of bad debt losses are often received by the types of people who are the target of welfare and assistance programs. However, the "transfers" are unsystematic and expensive, and resources are expended to prevent them from occurring. Furthermore, the transfers are supported by an implicit tax on savings, as bad debt losses result in a lower average return to saving.

Overall, the paper presents a wide range of data on numerous aspects of credit regulation and highlights the complexity of regulatory effects. It illustrates empirically the thesis that regulations impose substantial costs, even when they may benefit certain classes of consumers.

The Transfer Implications of Consumer Credit Regulation

This paper examines the regulation of the consumer credit industry from a somewhat different perspective, viewing the consumer credit regulations as devices for making income transfers between individuals. In some instances, it will be argued, the transfers made are those intended by legislators; in others, the transfers are unintended, and contrary to the intent of the legislation. Still others, though unintended, may be desirable from the point of view of many consumers and their representatives. Essentially all of the regulations applied to the consumer credit industry result in transfers of income or wealth from one consumer group to another. The usefulness or value of the regulation depends on which consumer subgroup point of view is taken.

The following discussion tries to avoid any particular point of view. The objective is to identify the effects on credit markets of several important types of regulations and to provide rough estimates of the transfers that result. When sufficient data are available, recipients or payors are identified. Without a well developed theory of consumer credit markets which includes enforcement and information costs, it is difficult to identify the variety of responses made by firms and consumers to regulation, and thus to identify all subsidies or transfers that arise. But, enough is known about the response of market participants to hazard some educated guesses about the distribution of grants generated by the regulatory system. At a minimum, the total amount distributed as a result of certain specific regulations might be reasonably well estimated.

The Consumer Credit Environment

Control (power) rather than ownership is the key to understanding the creation of transfers or grants in the public sector. The exercise of control over resources not owned is one of the more important factors that distinguishes a free market exchange (such as a purchase or the hiring of labor) from a grant. What legislators and regulators do often has little or no direct financial impact on them personally. The monies and resources they command do not represent their personal incomes or wealth. Nonetheless, they determine the amount of taxes to be collected and the distribution of those funds, and they pass laws and establish regulations that influence the flow of resources in the private sector.

Consumer credit is a commodity produced by the private sector and sold to consumers. Regulations regarding its sale and production are numerous. Most frequently observed are those regulations determining price (interest rates). Information and disclosure regulations are also pervasive (Truth in Lending, for example), and legislation regarding the collection of debts seems to be of increasing importance to regulators and legislators.

This paper focuses on interest rate ceilings and restrictions on the collection of debts. These restrictions result in prices and recoveries of debts that are lower than would likely prevail in a less regulated or unregulated market.[1] The transfer implications of these regulations are complex, involving changes in credit availability, search costs, enforcement costs and interest charges. Where credit is extended with the sale of merchandise, the cost of goods and services can also be affected.

At the end of 1976, there was about $175 billion of consumer instalment credit outstanding (excluding mortgages), including $60 billion in automobile financing (Table 1). Commercial banks held the largest amount of instalment debt ($84 billion), followed by finance companies and credit unions. Retail and bank revolving credit totaled $30 billion, a five-fold increase from levels in the late 1960s, but comprising only about 15 percent of outstanding consumer credit.

Revolving credit is an important means of making transactions in the economy. Substantially more than half of all consumers have some type of credit card. In 1975, revolving credit accounts (with about 1.5 cards per account) numbered about 330 million, compared to about 135 million of the more conventional "closed end" accounts (Table 2).[2] Revolving accounts generated about 5 billion charge slips in 1975, financing an estimated $80 billion in sales.

Over half of all U.S. families owe some type of debt at any given time (excluding mortgage credit), committing between 14 percent and 16 percent of aggregate disposable income annually to debt repayment. Nearly two thirds of all new cars and about half of all used cars are purchased with credit. About 40 percent of all durables are also purchased on credit. In addition, consumers borrow substantial sums from finance companies, credit unions and other institutions in the form of direct personal loans. In 1970, the median amount of consumer instalment debt owed was about $1000 per debtor.[3] It is clear that credit is an important aspect of consumer finances, expecially for young families. With so many consumers involved, it is not surprising that consumer credit is a major political concern.

Legislative Intervention

Legislative involvement in consumer credit is not new. Promises to abolish debt were common among Roman politicans, and interest rate ceilings were set as low as zero percent by Roman legislators. There are several basic reasons given for intervention in the credit market on behalf of consumers. First, concern is expressed that there is an imbalance in market power and that the consumer is relatively ignorant of the legal and economic nature of the market.[4] Thus, it is argued that the consumer will be forced to pay a higher rate of interest than is necessary. A rate ceiling will insure that the necessitous borrower is not excessively charged. Other arguments assert that those who are required by a reasonably well functioning market to pay high rates really should not have credit at all. Such consumers will, it is argued, be protected from themselves by the imposition of a rate ceiling that forces firms to ration them out of the market. Senator William Proxmire observed:

> "High interest rates are a burden on the budget of the average family, and tend to redistribute income from the poor and middle classes to the wealthy. The ready availability of credit also causes some families to overextend themselves by borrowing more than they can really afford."[5]
>
> "It would be much cheaper for a family to save the money for a major appliance rather than buying it on time..."[6]
>
> "One also wonders how seriously the staff [of the National Commission on Consumer Finance] considered alternative methods for channeling credit to needy borrowers unable to obtain credit in today's market. A government loan or a loan guarantee program might achieve the objective without costing anywhere near the estimated 3.5 billion [Senator Proxmire's estimate] which consumers will pay if the higher interest rate ceilings recommended by the Commission staff are adopted."[7]

Finally, there is what might be characterized as the "no one should have to pay that high a rate" view which agrues that rates above some specified level are unconscionalbe and should not be permitted, even if "economically" justified.

The impact of rate ceilings on the credit industry is well characterized by the literature on price ceilings. Output (extensions of credit) is restricted, and there is excess demand at the regulated price. Extra-legal markets expand and devices are found for circumventing the restriction on price. The restriction in loan production does not, however, appear as a simpale shortage of goods.[8] Rather, the "shortage" is selective, restricting credit availability to the riskiest of all applicants (demanders). Typically, these consumers have lower, less stable incomes and are less well educated. Those who still get credit at the lower rate could benefit.[9]

Regulatory effects may differ depending on whether the credit is sales credit (provided in conjunction with the sale of goods or services) or cash credit. Some merchants provide "free" credit, but recover credit costs in the price of the merchanidse. Thus, the effects of rate ceilings or collection restrictions can, in part, be evaded, and the process of evasion creates new sets of subsidies and transfers. Providers of cash credit are less able to engage in such activities, since their only business is cash lending.

These views are augmented by similar positions regarding the ability of lenders to collect debts. As one regulatory official recently noted: "In ancient Rome, the creditor had the right to kill the defaulting dobtor, sell him into slavery or retain him as a personal servant for life. No dobut this decreased the default rate. Some contemporary remedies do

TABLE 1

Consumer Instalment Credit
November 1976
(Millions of Dollars)

By Type:	
Automobile	$ 60,002
Mobile Home	11,549
Home Improvement	8,790
Bank Revolving	13,264
Retailers*	17,726
Personal; Other	64,002
	$175,333
By Lender:	
Commercial Banks	$ 84,278
Finance Companies	39,129
Credit Unions	30,053
Retailers*	17,726
Others	4,147
	$175,333

Source: Federal Reserve Statistical Release G.19

*Excludes $2.214 million of "30 day credit."

TABLE 2

Number of Credit Accounts
(Millions of Accounts 1975)

Revolving Credit	
Bank Credit Cards	40
Retail Credit Cards	170
Check Credit	3
T&E[a], Airline, Rent-a-Car, other	20
Oil Company	97
	330 million
Non-Revolving Credit	
Banks (excluding mortgages)	37
Banks (single payment)	7
Retail	26
Credit Unions[b]	24
Finance Companies	41
	135 million

Source: Credit Research Center, Purdue University

[a] Travel and Entertainment Cards like American Express

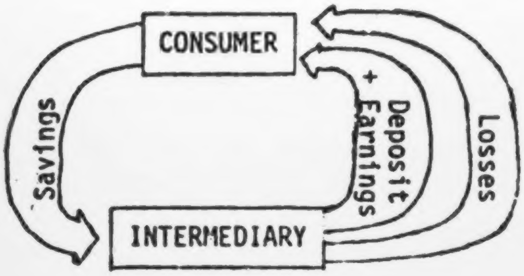
[b] Contains some revolving obligations

the same thing in a slightly more genteel fashion." Such views have, and continue to be implemented in laws and regulations that proscribe the collection activities of lenders.[10]

The consumer that defaults on an oblighation generally does so because s/he cannot meet payment commitments with current income and the need to make other necessary expenditures. Although not exclusively, these consumers tend to be lower income individuals, and those with high income variability. There have been no studies of the characteristics of the "deadbeat," but one might presume that such individuals would be those who could expect to gain more from a successful default than they would lose from the poor credit rating that would result. Restrictions on the amount of time that "adverse" information can be kept in an individual's credit record lower the cost of bankruptcies and defaults to the consumer involved, whether a deadbeat or not. Since these regulations lower the cost of such behavior, one might, ceteris paribus, expect an increase in the frequency of defaults and bankruptcies due to such regulations.

Identifying The Subsidies

By controlling prices in credit markets, legislators hope to effect certain consumer benefits, namely lower credit costs, or protection from the potential costs of overextension. For the most part, the intended recipients are lower income consumers.[11] The actual outcome, however, is a much more complex set of transfers. To illustrate this, it is helpful to construct a simple model of the lending process. Credit unions provide a good operational example. Consumers deposit savings at a credit union. The credit union, a financial intermediary, makes loans to some of its depositors. In principle, the intermediary returns the capital (savings) to the depositing consumers, plus all interest earned less the expenses of the operation.



The effect of rate ceilings and limitations on the intermediary's ability to collect delinquent loans is clear. The depositors get a lower return on their savings, due to depressed earnings and higher losses of capital. If each depositor were making a single loan, acting as his or her own lending intermediary, situations in which some savers might lose all their savings when a loan was not collectable would surely arise.

Under the current system, all depositors share the cost of credit losses, but the amount of funds transferred is the same (assuming that the same volume of loans is made).[12] Thus, three grants result from laws that limit interest rates or the ability of an intermediary to collect loans.

1. Those that can still borrow are permitted to get credit at a lower rate;
2. Depositors get a lower return; and
3. When a default occurs, the owed balance is transferred from the saver to the debtor when collection cannot be made.

This, however, is not the end of the story. Other responses occur in a market with alternative investments. Savers, when confronted with lower yields and higher risk may put their funds elsewhere. Since loans are made based on assessed risk, the riskier borrower will be rationed out by the intermediary with less funds to loan out. The intermediary can also shift depositors' funds away from consumer loans, into alternative investments, resulting in the same rationing.[13] This will result in two more identifiable transfers:

4. Consumers rationed out by this intermediary may find credit elsewhere, but at a higher price. The loss to this group is approximately $[R_a - R_i]$. L (assuming that they borrow the same amount), where R_a is the alternative borrowing rate, R_i is the rate charged by the intermediary and L is the size of the loan.
5. Rationed consumers that cannot find alternative financing lose the difference between the value of the intended use of the funds, net of financing costs, and the next best alternative use for the funds that would have been committed to monthly payments.

For some credit markets, the effects are even more complex. Retailers of goods and services and banks provide credit services, but also market many other products and services as well. For such institutions, adjustment in the supply of credit to rate and collection controls may be relatively smaller, or nonexistent compared to pure lenders, since revenue and capital losses can be recovered from other business functions. The extent to which the loss is apportioned to each type of product depends on the price and credit-availability elasticities of sales.

For example, consider a retail firm that has extended credit in a regulatory framework that permits an 18 percent annual percentage rate. Assume the rate is lowered by law to 12 percent. In principle, the firm would now accept only applicants that were "12% risks" or better, refusing credit to many who qualified at 18 percent.[14] However, if sales are more sensitive to credit availability than to an equlivalent price change for merchandise or services, then it may be better to raise prices than to curtail credit availability.[15] Such a change would involve a third group in the transfer process--the cash buyers who receive lower total services for the same price than their credit-card using counterparts. Thus, the users of credit are subsidized by the consumers who pay cash. In general, consumers that qualify for credit are relatively better off financially than those who do not. The lower the maximum allowable rate, the higher the economic status of the users of credit will be compared to those that do not qualify.[16] Thus, for sales credit, one additional transfer is present:

6. Purchasers of goods and services using cash may subsidize the use of credit by credit card users if the costs of providing credit card services are not covered by the credit revenue generated.

One additional subsidy exists that is unique to the credit card environment. The credit card provides a line of credit that can be exercised at the discretion of the holder. If a credit card user pays his or her obligation within a specified period, no finance charge is assessed. Thus, the benefits of card use accrue at no cost to the user. The services, however, are produced at a cost, which must be covered either by credit users that pay finance charges, or by cash customers, or both. Currently, between 1/4 and 1/3 of retail and bank credit card holders use their cards for a year and pay no finance charges on their accounts.[17] This, however, is not due to any particular regulation, but rather to practices growing out of the now nearly extinct thirty day open accounts offered by many stores years ago. In the bankcard market, it appears that this subsidy is already being reduced through the imposition of annual fees or monthly handling charges imposed when no finance charge is paid.[18] This subsidy is based on the decision of the businessman and is presumably enforced by competition. In some sense, it is a transfer imposed by the threat of the customer to take his business elsewhere (to a firm that will offer a free period). Any one firm providing sales credit that withdrew the free period would run the risk of losing a substantial number of good customers.

More recently, some firms providing sales credit have tried to eliminate the subsidy between free riders and those who pay finance charges by assessing finance charges on the average daily balance. A true average-daily-balance method would assess the user from the day of purchase, when credit is first extended, to the day of payment. This is the basis that all cash credit is provided on.

At the time of writing, legislators in several states have introduced bills that would prevent firms from eliminating the free period or using average-daily-methods, attempting to formalize by law the transfers from those paying finance charges to those who do not. These have been accompanied by the usual flood of bills aimed at reducing the maximum allowable rate of finance or interest charge that can be assessed.

It is abundantly clear that the basic trend in legislation is to formalize or expand many of the grants identified here.

7. Consumers who pay their revolving credit accounts within the grace period allowed use the services of the credit card but pay no fees. The cost of these services is paid by other customers of the intermediary, including other credit users or cash customers or users of other services.

The transfers and subsidies induced by the regulations are numerous and complex. The discussion presented here is probably not exhaustive, since, without a well specified theory of firm behavior and regulation, some responses may not be anticipated and identified. However, those identified here are known to exist, and an examination of their nature should be instructive. Overall, the attempt to secure low rates of interest and finance charges, and to eliminate certain procedures used to collect obligations has:

1. Secured lower rates for some consumers.
2. Resulted in lower returns to consumers that supply funds to the credit market.
3. Changed the cost of enforcing contracts, resulting in potentially larger volumes of bad debts, a transfer from the consumer with loanable funds to the consumer that borrows those funds.
4. Caused a reduction in the availability of credit, at least to certain groups of consumers.
5. Caused consumers to incur higher search costs for credit and, in some cases, to use more expensive sources of credit.

6. Produced a subsidization of users of sales credit (revolving credit) by other customers fo the firm.
7. Produced a subsidy to users of credit cards who never pay finance charges or any other fees for the use of credit card services.

In the last section of this paper, an attempt is made to quantify the subsidies and transfers identified, and to provide some insight into the characteristics of consumers that are party to the grants that have been observed.

Measuring Grants: The Case of Revolving Credit

Although consumer revolving credit makes up only about 15 percent of total consumer instalment credit outstanding, it is an important and growing financial service. Many large firms estimate that over 50 percent of their business volume is transacted through the credit card medium, although much of it is paid off within the grace periods allowed. The credit card provides other services including record-keeping, easier cash management, less risk due to carrying cash, and flexibility in the amount of debt held in the portfolio.[19] Rates that can be charged for credit extended through this medium are established in most every state, ranging from 10 percent to 20 percent. The collection of credit card obligations is generally subject to the same restrictions as most other consumer debt.

Studies of the effects of the imposition of [lower] rate ceilings provide more explicit evidence about the nature and incidence of associated grants. In states with border cities, credit-sensitive business has tended to re-locate in the state with less restriction, redistributing jobs, incomes, and tax revenues and imposing a different distribution of search and transactions costs on consumers [18].

Subsidies from Changed Credit Availability

The imposition of rate ceilings and restricted creditor remedies results in lower credit costs for consumer that qualify at the restricted rates (less any subsidy paid through higher prices for goods and services). Those that do not qualify for credit from the affected source may find credit elsewhere, possibly at a higher price, or may not get credit at all. A comparison of credit card ownership in Washington, a state that lowered the legal maximum from 18 percent to 12 percent, to California, New York, and Texas (states where comparable studies have been done) indicated that use of credit cards is less extensive in Washington than in the other three states, and, although other plausible theories could be constructed to explain the differences, the findings are consistent with the predicted effects of a lowering of the rate ceiling. Furthermore, a study made immediately after the rate was lowered indicated that firms tightened their lending standards [12]. The imposition of a 12 percent rate in Minnesota led banks to suspend credit card operations. Subsequently, they were resumed, but with the imposition of an annual charge of $10 for the use of a bank card. The Arkansas courts have held that such a charge does not violate state usury statutes (ten percent on all credit).

Some inferences about the incidence of credit rationing in Washington can be drawn from the data in Tables 3 and 4. These show credit card ownership data for families in Washington, California, Texas and New York. The families were selected in each state from among those

TABLE 3

Comparative Card Ownership

	Washington	California	New York	Texas
Retail Cards				
None	[a]	[b]	[c]	[d]
1-2	46%	25%	26%	27%
3-4	33	36	34	30
5 or more	21	39	40	43
	100%	100%	100%	100%
Bankcards				
None [e]	43%	32%	33%	32%
1	41	48	41	37
2 or more	16	20	26	31
T&E Cards				
None [e]	86%	83%	77%	81%
1	12	13	19	16
2 or more	2	4	4	3
Gas Cards				
None [e]	27%	16%	45%	11%
1	18	19	16	12
2	23	21	15	18
3 or more	32	44	24	59

[a] All holders of at least one department store credit card selected from a representative sample of Washington households selected by Reuben Donnelley. The survey was conducted in 1974.

[b] Based on a sample of retail credit accounts selected from the files of California retailers by Touche Ross & Co. The survey was conducted in 1970.

[c] Based on a sample of retail credit accounts selected from the files of New York retail stores. The survey was conducted in 1973.

[d] Based on a sample of 550 account holders at Sears Roebuck & Co. in Texas. The survey was conducted in 1971.

[e] Includes those who did not answer the question. It is assumed that they had no cards of the type specified: 6% for bankcards; 21% for T&E cards; 3% for gas cards in the Washington study.

TABLE 4

Total Number of Cards Owned

Family Income	Number of Cards					
	1-4 cards			5-9 cards		
	Wash	Calif	N.Y.	Wash	Calif	N.Y.
Under $7500	53%	52%	45%	41%	24%	54%
$7501-10000	49	16	70[a]	43	53	22[a]
$10001-15000	41	15	38	47	59	46
$15001-20000	25	16	24	56	60	51
$20001 or more	12	9	10	47	41	45
All families	36%	18%	30%	47%	49%	45%

	10-14 cards			15 cards or more		
	Wash	Calif	N.Y.	Wash	Calif	N.Y.
Under $7500	6%	22%	*	*	2%	*
$7501-1000	6	31	8[a]	2	*	*[a]
$10001-15000	10	24	11	2	2	5
$15001-20000	18	20	21	1	4	4
$20001 or more	32	38	35	9	12	10
All families	14%	28%	20%	3%	5%	5%

Source: Credit Research Center, Purdue University

[a] This jump appears to be due primarily to lower gasoline card ownership for this income group. Ownership of larger numbers of cards is therefore lower.

with at least one retail credit card.[20] By type of card, ownership of a few or no cards is substantially more frequent in Washington than in the other three states (Table 3). The least difference is observed for T&E cards. This, however, would be expected, since these cards do not offer regular revolving credit options and charge an annual fee. Amounts owed are to be paid upon receipt of the bill, lessening the importance of the low rate ceiling. For oil company cards, New York consumers are the least frequent users, due to the low rate of car ownership in New York City. Excluding oil company cards from the comparison leaves Washington consumers using substantially fewer cards than consumers in the other two states.

These results tend to hold for various levels of income.[21] Table 4 indicates that fewer cards are owned more often by all income groups in Washington, once the effect of low oil company card ownership in New York is accounted for. A more recent study of bank credit cards in Washington and California provides further support, indicating delinquency rates in Washington are only one-half of those in California (one percent vs. two percent) and relatively lower delinquent account expenses for Washington banks (Table 5). The lower delinquency rates and credit costs indicate that better than average risk customers are served in Washington than in California.

Several other studies provide evidence of the likely impact of a tightening of credit standards [7, 12, 23]. Consumers in each study were scored based on their characteristics, as if they were applying for a retail or bank credit card.[22] Table 6 indicates the distribution of income for various ranges of scores in a study of New York retail credit card users. When a firm tightens its lending standards by raising the minimum acceptable score, the incidence of refusals is found disproportionately among consumers with relatively lower incomes. For example, if the minimum retail score in New York were raised to 80, it would have, based on the scoring model used, eliminated 4.9 percent of the current card users in 1973 (Table 6). Thirty-five percent of those who would have lost access to this type of credit had incomes of $7,500 or less, although this group made up only nine percent of the retail card-using population.

Use of credit cards is concentrated in the higher income groups, and actual use of the revolving option is also concentrated among the middle to upper income groups (Table 7). Thus, in terms of access, frequency of actual use, and amount financed, the group that would benefit the most (be damaged least) from the lowering of the ceiling is probably the middle- to upper-income consumer.

There is very little evidence to indicate what happens to consumers that are rationed out of one segment of the market. The basic rationale for a specialized rate structure for finance companies was the existence of the illegitimate, high rate lenders. A 1971 study of former customers of loan companies in Maine, where legislation had driven most of the finance companies out of business, indicated that about 27 percent were able to get some type of bank loan, while 20 percent borrowed from finance companies still in operation, and three percent from friends or relatives (Table 8). Fifty percent did not borrow additional funds [1].[23] When the more restrictive law was passed in 1967, finance company outstandings were $31 million. By 1978, virtually all finance companies had ceased doing business.

TABLE 5

Bank Card Statistics:
California and Washington
1973-1975 (averages)

	California	Washington
Percent of Total Credit Revenues		
Earned as		
Customer Finance Charges	71%	55%
Merchant Discounts	14%	28%
Late Charges	1%	2%
Percent of Active Accounts That were Delinquent	2%	1%
Delinquent Account Costs as A Percent of Total Credit Card Costs*	36%	18%

Source: Credit Research Center, Purdue University

*Includes bad debt losses.

TABLE 6

Simulated Rejections of Credit Cardholders by Credit Score Cutoff Points New York Retail Credit Card Users, 1973

Retail Score	Cumulative Percent of Account Holders Affected[a]	Percent with Income Under			
		$7,5000	$10,000	$15,000	$20,000
Raise to 70 (70 to 80)	3.9 (1.0)	29 (53)	32 (53)	48 (76)	84 (99)
Raise to 80 (80 to 90)	4.9 (3.7)	35 (17)	37 (31)	55 (64)	89 (70)
Raise to 90 (90 to 100)	8.6 (3.5)	27 (36)	34 (44)	59 (53)	81 (69)
Riase to 100 (100 to 110)	12.1 (5.9)	29 (7)	37 (32)	57 (74)	78 (85)
Raise to 110 (110 to 120)	18.0 (6.3)	22 (7)	36 (28)	62 (46)	80 (71)
Raise to 120	24.3	18	34	58	78
Bank Score					
Raise to 24 (24 to 29)	1.6 (5.0)	89 (36)	89 (48)	100 (75)	* (85)
Raise to 29 (29 to 34)	6.6 (11.8)	50 (19)	58 (53)	82 (74)	89 (92)
Raise to 34 (34 to 39)	18.4 (17.9)	30 (8)	55 (29)	77 (58)	91 (84)
Raise to 39	36.3	19	42	68	87
Sample Income Distribution		8.9%	17.3%	42.0%	68.4%

Source: [23]

[a] Figures in ( ) show the incremental proportions of the population affected and the income distribution for that group alone.

Since those losing access to revolving credit when a lower ceiling is imposed is known to be of relatively higher risk, it would seem safe to presume that many, though not all, would get credit only at higher rates. Clearly such was not the intent of the rate restriction, and the failure to anticipate such a response may be one of the potential information feedback problems that lead to "pathological states of the grants economy" to which Boulding refers [2, p.24].

To the extent that the lower ceiling prevents some higher risk consumers from getting credit, it might be said that an intended "grant" had been made, and that these consumers would be protected from themselves and the irresistible urge to over-extend their credit.[24] Since consumers can rarely be expected to borrow just for the fun of it, denial of credit also implies the loss of the value that would have been derived from the expenditure of the borrowed sum (less the consumption value of what would have otherwise been monthly payments). At any point in time, between two and four of every one-hundred accounts may be delinquent (behind one or more payments). Of these, only a few will actually end up written off or in bankruptcy. If possible, the system would have initially discovered two or three accounts per hundred and denied the applicants credit. Instead, consumers must be treated ex ante in groups having roughly the same credit-related characteristics. If economic factors require the elimination of those that most frequently have problems and generate high costs, the entire group would have to be rationed out of the market. Thus, using regulation to save a few families from the difficulties of overextension may deny many more consumers the benefits of access to credit.

TABLE 7

Account Data By Family Income Group
New York Retail Credit Card Users

Total Household Income (1973)	Number of Accounts	Percentage Distribution[b]	Account Average (12-Month Period)[a]: Total Sales	Net Sales[c]	Net Revolving Sales	Finance Charges	Number of Revolving Months[d]
$5,000 or under	39 (50)	2.3	$101	$ 92	$ 72	$10.27	4.3
$5,001 - 7,500	115 (70)	6.7	172	169	107	5.18	4.1
$7,501 -10,000	153 (90)	8.9	263	250	172	21.26	6.6
$10,001-15,000	454 (252)	26.5	246	219	138	18.95	5.9
$15,001-20,000	449 (212)	26.2	253	232	136	14.95	5.2
$20,001-25,000	212 (103)	12.4	269	205	85	6.74	4.0
$25,001 or more	294 (120)	17.1	239	224	115	17.36	4.8
All	1,716 (897)	100.0%	$243	$218	$126	$15.21	5.2

Total Household Income	Percent of Net Sales Revolved	Share of Net Sales[b]	Share of Finance Charges[b]	Ratio of Finance Charge Revenues to Net Sales	Ratio of Finance Charge Revenues to Revolving Sales
$5,000 or under	78.2	1.0%	1.5%	11.2%	14.3%
$5,001 - 7,500	63.2	5.2	2.3	3.1	4.9
$7,501 -10,000	68.7	10.3	12.5	8.5	12.4
$10,001-15,000	63.1	26.6	33.0	8.7	13.7
$15,001-20,000	58.5	27.8	25.7	6.4	11.0
$20,001-25,000	41.4	11.6	5.5	3.3	7.9
$25,001 or more	51.6	17.6	19.6	7.8	15.1
All	58.0%	100.0%	100.0%	7.0%	12.0%

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[a] Data weighted according to each store's relative share of credit sales for the 17 stores in the New York study.

[b] Percentages may not add to 100% because of rounding.

[c] Net sales = total sales less returns and credits.

[d] Months in which the balance due is not fully paid off.

TABLE 8

Borrwoing Activity and Attitudes
(1971, N = 460)

Feelings About Loss of Finance Company Lender	Alternative Borrowing Activity	
	Obtained Other Funds	No Borrowing
Felt Better Off	74.0%	36.3%
Rid of "burden"	13.0	29.8
Got better credit	59.4	--
Finance companies a necessary evil	--	6.1
No reason given	1.7	0.4
Felt Worse Off	7.0%	36.3%
Too easy to borrow, still under "burden"	6.1	--
No other alternative	--	11.4
Burden of high rates leads to repayment difficulty	--	24.9
No reason given	0.9	*
Felt About Same	19.0%	27.6%
Still with finance co.	7.8	--
Still borrowing elsewhere	9.5	--
Does not matter where you borrow	--	19.7
No reason given	1.7	7.9

Source: Benston [1], page 41.

*less than .5%

When credit is refused, the consumer can search other sources of credit or simply not borrow. Successful searchers incur additional search costs, since their options are reduced, and most will likely pay a higher rate for the alternative source of credit. Unsuccessful searchers incur the added costs of search and must do without the credit and the benefits resulting from its use.

The cost to the consumer of such outcomes is most difficult to measure. To illustrate the complexity and the approach, a somewhat artificial example is presented. Dunkelberg and Stephenson [11] estimated the rate of return to ownership of a washer and dryer when compared with the alternative of using a laundromat. A typical pattern of returns (depending on the number of loads of wash done weekly) is shown in Appendix Table 1. The distribution of the rate of return (a function of loads per week washed, or family characteristics) was computed by family income class [11, Table 1C, p.57]. Assume rationing occurs in the form of an increase in the minimum required score for retail credit from ten points to 30 points. This would eliminate six percent of the population from eligibility.[25] Assuming that the total price ($450) is borrowed for the life of the machine (ten years), an example of the cost of credit denial can be calculated on the presumption that for all families in this group, this purchase was the best marginal expenditure available.[26] For the first illustration, assume that credit was available at 18 percent APR, but rationing forces the six percent who are the highest risk to borrow from a lender at 20 percent. The economic loss would total $58 million for these consumers.[27] As a second example, assume that no alternative credit is available and the purchase of the washer and dryer is not made. Then the economic loss amounts to $224 million, less the value of the next best use of the money. Both figures exclude search costs and are present values.

The Transfer Due to Bad Debt Losses

Viewing bad debt losses as a wealth transfer, there is an additional cost to rationed consumers--the value of bad debt losses that would otherwise accrue to this group. The aggregate amount of such transfers is substantial, and even though the transfer often requires great expense (lawyers, court action), those receiving it are probably made better off.

In 1976, transfers due to bad debts was estimated at $2 billion (Table 9). This figure was derived by applying rather conservative estimates of the loss rates for various types of lenders to outstanding balances at the end of 1976. In addition, considerable expense is incurred in the attempt to collect a debt prior to writing it off. The "cost" of making (or preventing) these transfers is substantial and perhaps counter-productive if the transfer is viewed as desirable.[29]

In the New York retail credit card study [23], bad debt losses amounted to $11 million, an average of $2.12 per active account in the 17 stores studied. In California, the losses amounted to nearly $20 million [26]. Table 10 shows the income distribution of delinquent accounts from a study of California retail store credit card users [10]. The average cost of collection per account was $28, only slightly less than the average loss of $31. The average loss declines with rising income and the frequency with which consumers become delinquent also declines. The data indicate that losses are relatively more frequent and larger among lower income groups. Viewing these losses as transfers, it appears that lower income groups are more likely to receive them. Sixty percent of the losses were found among families with incomes below $10,000, about 26 percent of the card-using population.

"Free Riders" and the Cash Customer Subsidy

There are no "depositors" that will receive lower returns on their deposits in the case of consumer revolving credit except possibly where bankcards are concerned. Instead, deficiencies from credit card operations will be paid from general revenues, i.e., by all customers at the firm, whether or not they use credit cards. An early study of the 12 percent rate in Washington reported "The majority of retailers responded that they had raised prices on all merchandise to make up for their losses...." [12, p.96]. Several studies of the Arkansas 10 percent rate found that cash prices within the state were higher by approximately enough to cover credit losses. Thus, "credit prices" (the total outlay for an item bought on credit) were the same across state lines, but cash prices were higher in Arkansas [18]. Interestingly, the catalogs of major retailers, which are prepared on a regional basis, make it difficult for merchants to raise prices to cover all credit losses that would be incurred in a less restrictive environment, forcing them to remain relatively more restrictive on credit qualifications than firms in bordering states with higher rate ceilings.

A study of New York retail credit card users [23] indicated that a reduction in the maximum rate to 12 percent from 18 percent could "save" credit card users $14 million dollars, (assuming the same amount of credit is extended). However, this would increase the deficit in the credit operation by an equal amount, from about

TABLE 9

Estimated Transfers From Bad Debt Losses

Credit Outstanding By Type of Lender	Amount (millions of $)[a]	Estimated Loss Rate (percent)	Estimated Net Bad Debt Losses (millions of $)
Commercial Banks			
Revolving	13,264	1.0%	$ 132.6
Other	71,014	0.5%	355.1
Retailers	17,726	1.5%	265.9
Finance Companies	39,129	2.5%	978.2
Credit Unions	30,053[b]	0.5%	150.3
Other	4,147	2.0%	82.9
			$1965.0

[a] November 1976, Board of Governors, Federal Reserve System

[b] Credit unions typically keep delinquent loans on the books for very long periods of time, artificially lowering their loss rate.

Source: Credit Research Center, Purdue University

$29 million dollars to $43 million (Table 11). To continue to earn a competitive return on capital invested, firms would have to raise prices to recover the loss in revenue. The deficiency at 18 percent amounted to 1.3 percent of all sales (3.7 percent of credit sales). At 12 percent, the shortfall would rise to 1.9 percent of all sales. Thus, average prices would have to be increased by .6 percent, inducing a subsidy of considerable complexity as noted earlier in the paper. On a per account basis, the deficiency would be increased from $5.60 to $8.40. Thus, lowering the ceiling rates applicable to credit cards may provide credit at lower rates for most users. This is done, however, at the expense of higher prices (or adjustments in quality, service or other factors) and the rationing of marginal consumers from this market. If total revenues produced by credit card use are less than costs for some users, a subsidy exists. About one-fourth of retail credit card users never pay finance charges. Another 50 percent of the users "free ride" at least once in a one year period. The "free riders" most frequently occur among the highest and the lowest income users (Table 7). The marginal cost of producing credit entails the incurrence of the numerous costs detailed in Appendix Table 2. After the account is open, costs will depend on the number of charges made, the size of the balance owed, the number of returns and credits and average collection and capital costs. Revenues result from gross margins on merchandise and finance charges.

To examine the size and distribution of these subsidies, a measure of cost was determined based on use patterns over the period of a year.[30] Since no measure of cash sales was available, only credit card sales

TABLE 10

Bad Debt Transfers Among Credit Card Users

Income Group	Distribution of Credit Card Users	Probability of Default	Delinquent Accounts: Distribution of Delinquent Accounts*	Delinquent Accounts: Average Cost of Collection Activities	Delinquent Accounts: Average Debt Written Off	Delinquent Accounts: Share of Bad Debt Losses
Under $5000	5.8%	.044	6.3%	$32	$45	9.3%
$5001-7500	5.5	.175	24.1	$43	$33	26.1
$7501-10,000	14.3	.070	25.1	$23	$29	23.8
$10,001-15,000	24.5	.051	31.0	$24	$23	23.3
$15,001-20,000	21.2	.012	7.6	$20	$52	12.9
$20,000 or more	28.7	.008	5.9	$16	$24	4.6
All	100.0%	.040	100.0%	$28	$31	100.0%

*Income was not known for 29% of the problem accounts. They are excluded from the distributional percentages. Their collection statistics were virtually identical to the lowest income group, but that assumption can not be strongly supported by the available data.

were included in the revenue computation. A measure of net revenues, S, was constructed by netting estimated costs against revenues, the variance of which depended on the number of transactions, the volume of sales, the amount of credit actually used and the expected (average) collection costs based on the users income. This measure was regressed on the characteristics of the users in an attempt to discover the direction of subsidies, if any, and particularly with respect to income. The results are shown in Table 12 for New York.[31]

The regression coefficients in Table 12 are estimated so that their weighted sum (the sum of the coefficients multiplied by the number of cases in the group) adds to 0. All coefficients, then, are deviations from the average measure of S for the sample. Negative coefficients indicate that the average difference between costs and revenues for the group was below the mean for all retail credit card users. Since the cost measure only included variable costs, no absolute statement can be made about user profitability. But, it is clear that for some population sub-groups, the difference between revenues and variable costs is likely to be negative. For example, the group of users that are young, single, new on the job and earning a relatively low income could generate an average deficiency of $30 or more.[32] Thus, as a group, consumers with these characteristics are receiving a substantial subsidy in the use of their credit cards, a subsidy paid for by groups generating excesses of revenues over costs, and by all purchasers of goods and services to the extent that deficiencies in the credit card operation are recovered in the price of merchandise. Looking at family income alone, the data indicate that users with incomes of $10,000 or less received a subsidy in the use of their credit card accounts.

TABLE 11

Deficiency of Credit Costs Over Credit Reveneus: New York and California

State	Credit Sales	Total Sales	Current Deficiency[a]	Deficiency at 12%	Deficiency Percent of Sales	
					18%	12%
California	\$1,413,741,000	N.A.	\$34,867,361[a]	\$52,057,300[c]	.9%[e]	1.3%[e]
New York	\$776,453,500	\$2,223,734,000	\$28,841,000[b]	\$43,059,900[d]	1.3%	1.9%

[a] [26, Exhibit I].

[b] [23, page 88]. Includes 15 stores which use several methods for computing finance charges.

[c] Assumes the same proportionate increase as found in New York.

[d] [21, page 88]. Assumes that account holders use their accounts in the same way as when an 18% charge is imposed.

[e] Assumes the same ratio of credit sales to total sales as found in New York.

Conclusion

There are an estimated 500 million credit accounts in the U.S. today (excluding mortgages), used by more than half of all families. There is considerable turnover among credit users, with about 25 percent of the families with instalment debt (excluding credit cards) paying off their obligations each year. These are replaced by an approximately equal number of new debtors. In all, these families are using about $175 billion of credit, with an average maturity of about two years.

The use of this credit is controlled by a large body of regulations, with some of the more important being rate ceilings, the Equal Credit Opportunity Act, Truth in Lending, the Uniform Commercial Code, various restrictions on creditor remedies, and the Fair Credit Billing Act. This list is far from exhaustive. These laws were instituted with particular objectives in mind, and each could be evaluated on the basis of just how well the objectives were met. This paper took a slightly different approach. Focusing on rate ceilings and limitations on the ability of creditors to collect debts, an attempt was made to identify the effects, intended or unintended that these regulations have had. The inventory of effects was not exhaustive, but included many interesting and important ones.

Lower rate ceilings were found to provide credit at lower rates to consumers, but only to those who qualified for credit at the lower rates. For example, credit card ownership was found to be substantially lower in Washington, a state with a 12 percent ceiling rate and can loan at rates in excess of 25 percent. Thus, lower rate ceilings in

TABLE 12

Socio-Economic Determinants of Net Revenues For Retail Credit Card Users (New York)

	Number of Accounts[a]	Group Mean Less Grand Mean[b]	Adjusted Regression Coefficient[c]	F[d]
Income (1973)				
$5000 and under	8	$16.6	-$ 5.4	0.5
$5001-7500	78	-23.2	- 24.5	77.8
$7501-10,000	131	- 0.9	- 1.9	1.3
$10,001-15,000	380	1.8	0.8	--
$15,001-20,000	407	2.5	4.7	5.1
$20,001 and over	460	0.0	0.0	0.2
Age				
Under 25	83	- 6.1	0.5	0.7
25-34 years	375	- 4.2	- 4.7	2.2
35-44 years	371	- 1.5	- 2.1	--
45-54 years	371	1.2	0.0	1.6
55-64 years	235	5.9	7.7	26.7
65 and over	29	27.1	25.5	33.4
Years with Present Employer				
Under 1 year	119	- 4.1	1.4	2.0
1-2 years	124	-10.0	- 8.2	7.0
3-5 years	290	1.1	2.6	7.5
6-10 years	293	3.0	4.9	17.6
11 or more years	638	0.8	- 2.0	--
Marital Status				
Married	1135	1.4	0.2	--
Single	208	-14.4	- 9.7	23.6
Separated	19	7.3	13.2	6.5
Divorced	36	16.4	17.0	18.9
Widowed	66	9.4	14.7	23.0
Housing Status				
Own Home	935	1.8	- 0.5	--
Rent; other	529	- 3.1	0.9	0.8
Sex of Respondent				
Male	946	2.2	0.3	--
Female	518	- 4.0	- 0.5	0.3
Occupation				
Professional	267	- 0.9	- 0.2	--
Technical; Scientific	100	- 6.4	- 6.3	5.6
Supervisors; Self Employed	344	3.9	2.6	2.1
Clerical & Sales	308	- 4.7	- 5.1	5.7
Craftsman; foremen	141	4.5	4.5	3.5
Service Workers	117	1.0	3.3	1.9
Operatives; unskilled	126	8.5	7.6	8.6
Students; Housewives, Retired	62	-13.4	- 10.0	8.1
CONSTANT			$15.5	

R^2 = .20, Standard Error of Estimate = 21.3, Regression F = 15.2.

[a] 1464 weighted accounts, 722 unweighted. An equal number of accounts were selected from each of 17 stores, regardless of size. Accounts were then weighted to reflect the total volume of receivables they represented. Cases with missing data were omitted.

[b] The deviation of the average net contribution for each group from the overall sample mean of $15 for net contribution.

[c] Adjusted to yield the overall mean of $15.50 as the constant term in the regression equation. Thus, each adjusted coefficient represents a deviation from the sample mean of the dependent variable [5]. The actual regression coefficients for each group can be constructed by subtracting the coefficient for the excluded group from the remaining coefficients in the group.

[d] Excluded category represented by --. F statistics, based on differences between the included categories and the category excluded in dummy variable estimation.

Washington secured lower rates on revolving credit, but for fewer consumers. More consumers turned to finance companies for their credit, paying higher rates and incurring additional search and transaction costs.

It was estimated that a 12 percent rate in New York could save retail credit card users at 17 major stores about $14 million in finance charges, assuming that the same amount of credit remained available. Of course, if credit was not contracted to lower costs, the revenue loss would have to be made up elsewhere, since the retail industry is very competitive and yields relatively low rates of return on invested capital. If firms recouped the loss through higher prices for merchandise, prices would have to rise about .6 percent. Even so, credit users would ultimately benefit with cash customers paying the balance of the credit card operation deficit. Consumers that could find no alternative source of credit would experience even larger opportunity losses, and would join the ranks of the cash buyers, subsidizing credit card users.

Bad debt losses are usually viewed as part of the cost of lending, one of the determinants of the lending rate. In this paper, they were considered as transfer payments, from consumers with savings to those who borrow. In 1976, such transfers amounted to about $2 billion. In addition, large sums of money were spent preventing these transfers (by trying to collect debts). Interestingly, in many cases, these transfers go to the types of people that are often the targets of welfare programs--poorer people with unstable employment, or people struck by misfortune. This is not always the case, however, and many consumers "deserving" of welfare support choose to repay their obligations, even at great personal expense. When the debts of higher income families go bad, the amounts are often larger (though less frequent), so that the transfer payments may be in some sense, "regressive." All in all, it is probably not a terribly efficient transfer payment system (although perhaps as good as the official programs). Unfortunately, the "taxes" used to support the program come only from savers, and from borrowers that do repay their loans.

The total amount of transfers identified here are not due entirely to regulation. Pure economics dictates an optimal level of "bad debts" those that are expensive to collect, involve a small sum, or have a low probability of collection. There are better uses for resources. But, the regulations can have a substantial effect on the magnitudes of these flows.

Any credit rationing that results from lower rate ceilings on revolving credit has a disproportionately large effect on lower income retail credit card users. Thus, these consumers will least frequently get the benefits of the lower rates, and will be forced to use more expensive credit or become cash customers, subsidizing the credit use of more affluent consumers. A simulation using a sample of New York retail credit card users indicatyd that about 30 percent of the consumers disqualified by higher credit standards among current users of credit cards would have incomes of $7,500 or less (in 1973 dollars), even though they made up about nine percent of the card using population. An attempt to measure the value of access to credit indicated substantial sums were involved, because of the high rate of return attached to durable goods used in the analyses.

The grants intended by credit legislation are substantial and it is not surprising that various constituent groups are very concerned about related legislative developments. But, the response to regulation sets in motion additional transfers which must be accounted for in the process of identifying and measuring regulatory effects. The successful completion of such analyses as those attempted here would seem to be a prerequisite to meaningful evaluation of the social value of such regulation.

APPENDIX TABLE 1

Distribution of Rate of Return on a Washer and Dryer

(Families with Retail Scores Between 10 and 30)

Income Class	% of Rationed Families[a]	RATE OF RETURN[b]										
		2.1%	6.7	10.9	14.8	22.0	29.0	35.8	42.9	50.1	57.4	ALL
$1000	7.0	.67	.17	.08	.03	0	.03	.02	0	0	.02	1.0
$1000-1999	17.1	.55	.35	.03	.03	.01	.02	0	.01	0	0	1.0
$2000-2999	11.0	.33	.48	.06	.04	.01	.02	.02	.04	0	0	1.0
$3000-3999	13.6	.27	.46	.02	.09	.06	.03	.01	.02	.03	.02	1.0
$4000-4999	8.3	.10	.57	.13	.08	.03	.01	.03	.01	0	.03	1.0
$5000-5999	11.4	.08	.40	.13	.16	.05	.07	.05	.03	.01	.01	1.0
$6000-7499	11.0	.09	.30	.10	.18	.09	.12	.03	.06	.02	.01	1.0
$7500-9999	9.2	.04	.27	.16	.15	.13	.10	.08	.05	.02	.01	1.0
$10,000-14,999	7.9	.01	.26	.16	.22	.13	.10	.05	.04	.02	.01	1.0
$15,000 or more	3.5	.02	.27	.16	.23	.14	.10	.03	.02	.01	.02	1.0
	100.0%											

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[a] Raising the minimum score from +10 to +30 disqualifies 6% of the population based on the 1967 Survey of Consumer Finances. See Table 10, "A Lower Rate Maximum for Retail Credit: The Impact on Consumers," in Technical Studies Volume VI, The National Commission on Consumer Finance, p. 22.

[b] Table 10, "Durable Goods Ownership and the Rate of Return," W. Dunkelberg and J. Stephenson, in Technical Studies Volume VI, The National Commission on Consumer Finance, p. 57.

APPENDIX TABLE 2

Credit Costs as a Percent of Net Revolving Credit Sales

	New York (1972)[a]	California[b]
Net Revolving Credit Sales	$776,453,500 100.0%	$1,413,741,084 100.0%
Finance Charge Revenue	7.60%	7.8%
Credit Costs		
Personnel Costs		
New Accounts	.50	.31
Account Servicing	1.04	1.35
Account Collection	.42	.51
Additional Sales Personnel	.13	.10
Supporting Services	.11	.07
Management	.05	.07
Data Processing	.25	.20
	2.50%	2.61%
Data Processing Equip.	.16	.15
Credit Investigation	.14	..15
Bad Debt Losses	1.40	1.40
Collection Agency Fees	.17	.15
Credit Space and Equipment	.20	.14
Postage	.40	.91
Communication	.15	
Supplies and other	.46	
Cost of Capital	5.73%	4.76%
TOTAL CREDIT COSTS	11.31%	10.27%

[a] Shay, R. and Dunkelberg, W., *Retail Store Credit Card Use in New York*, Columbia University Press, 1975, p. 76.

[b] Touche Ross & Co., "Cost Analysis of Retail Store Revolving Credit: State of California," *California Retailers Association*, Sacramento, California, 1971.

FOOTNOTES

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[1] In the case of recoveries, levels of delinquent debts recovered may remain the same, but the cost of recovery will increase. A more precise statement would require a model of the credit granting process that explicitly modeled the collection process. See Ying [28] and Umbeck and Dunkelberg [27].

[2] A revolving account has no fixed obligation or monthly payment. These may be changed each month at the discretion of the consumer as more purchases are made or more is paid off. "Closed end" accounts are for fixed sums of money for fixed periods of time and with constant monthly payments.

[3] Katona, George, et.al. The 1970 Survey of Consumer Finances, Survey Research Center, University of Michigan, Ann Arbor, 1971, page 21.

[4] This is, no doubt, due in part to the tremendous complexity of the legal framework imposed on this market. Aside from this, it is not clear that the consumer would be in any better negotiating position when buying a TV set or a car or any of the many services typically acquired in the marketplace.

[5] Senator William Proxmire in his commentary on Consumer Credit in the United States: The Report of the National Commission on Consumer Finance, U.S. Government Printing Office, 1972, page 229.

[6] Ibid, p. 229.

[7] Ibid, p. 224.

[8] In the case of goods, the creation of a shortage can result in a distribution in favor of those who can "afford" to queue, those consumers with the lowest opportunity cost of time. This will not occur in the case of credit.

[9] Credit cards assess only one rate, likely due to the cost of accurately assessing risk and the variability of risk over the life cycle. Similarly banks typically charge only a few rates. In general, the rate restriction will make more funds available to "good" customers, lowering rates on loans to those individuals.

Footnotes (continued)

[10] In a study of collection activities at a major retailer in California, repossession was used as a collection device only nine times in a one in five sample of 427 delinquent accounts.

[11] A general inference based on statements made by legislators in defense of limitations measures and by articles written advocating such restrictions.

[12] It is quite likely that in such a market, fewer loans would be made since consumers could not diversify risk and information costs would be too high (see [27]).

[13] In some instances, this is prohibited by law, resulting in such phenomena as "disintermediation."

[14] The situation is more complex, since most credit extensions are made in the form of credit card arrangements. These are not one time extensions but provide the consumer with a line of credit that is difficult to cancel unless mis-used. Thus, the firm cannot adjust its expected losses by cancelling accounts for consumers that fall in the unacceptable credit risk category at a 12 percent rate. No model of credit granting behavior is specified here. Thus, it is not clear at what risk level the firm should begin to refuse applicants to preserve a normal rate of return to capital. For the purposes of this paper, only the direction of the change is of interest.

[15] The price increase required to recoup the one-third reduction in credit revenues would not be large and would affect the condition of all firms simultaneously.

[16] Unfortunately, the issue is clouded by the fact that most, if not all, credit card carrying consumers also pay for some goods and services with cash. Some retailers have estimated that for every charge dollar, the average credit card customer makes cash sales of 60 cents. Thus, "cash" and "credit" customers are not uniquely identifiable groups for the purposes of estimating subsidies, although those consumers without credit cards must, by definition, always be cash customers.

[17] See Dunkelberg [7]; Shay and Dunkelberg [21]; and Touche Ross and Co.; "Cost Analysis of Retail Store Revolving Credit;" State of California, California Retailers Association, Sacramento, California [14]. Actually, this is proportion of active accounts at a representative sample of stores and banks that generate no finance charges. Since consumers typically have numerous cards, if they have any at all, the proportion of consumers, (not accounts) that never pay a finance charge could be lower.

Footnotes (continued)

[18] These fees have been imposed under two conditions. Most frequently, they are found in states with very low rate ceilings (Arkansas with 10 percent, Minnesota with 12 percent). In one other instance, a 50¢ per month fee was imposed when no finance charge was assessed on the bill. This is equivalent to a $6 annual change for "free" use of the card. The position of the bank is that "free riders" are not profitable (a charge is earned from the merchant discount charged) and that if other banks want those customers, they are welcome to them.

[19] See Dunkelberg [7] for a more detailed discussion of these other services.

[20] In Washington, the basic sample was a representative household sample. Those with at least one retail credit card were selected for analysis. In the other three states, samples were drawn from the files of retailers offering their own credit programs. Since families typically have more than one credit card, the theoretical probability of being selected rises with the number of cards owned. This may result in an upward bias in the observed frequency of multiple card ownership in California, New York and Texas.

[21] Inflation and regional differences in incomes compromise the comparisons somewhat, but probably not seriously due to the large intervals in the brackets and the fact that the data were gathered before the major inflationary surge.

[22] Several different actual scoring models were used, along with an "average" scheme based on the relative importance of variables in each model. In some cases, information on a few characteristics was not available. However, based on the weights used in the models, this probably had little effect on relative scores.

[23] Some of these consumers bought more goods on credit, clearly a substitute for direct finance company borrowing. Respondents did not consider this to be "borrowing."

[24] It is interesting to note that we might be viewed as being more tolerant of 25,000 auto deaths annually, plus many more injuries and the family crises this creates than we are of the difficulties that arise from the use of credit.

[25] Table 10, [11], page 22.

Footnotes (continued)

[26] The assumption of continual financing made for the calculation may not be as unreasonable as it seems at first glance. Since consumers are likely to be in debt continually over such a period of time, and the levels are not likely to vary much in terms of total commitment, it is not too artificial to view the consumer as continually refinancing $450, always choosing the cheapest method available. It was assumed that this is always at 18 percent for the ten year period. Other more complex patterns of the marginal cost of funds could be utilized.

[27] Assumes all members of the group with a rate of return above 20 percent (see Appendix Table 2) would make the purchase. The present value is computed at 20 percent and subtracted from the present value at 18 percent. Seventy-five million families are assumed. It is also assumed that the purchase price is financed for the 10 year period. Thus, $\$58.2$ million $= 75 \times .06 \times p \times PV_{18} - PV_{20}$ where p is taken from Appendix Table 2 for groups with a rate of return above 20 percent, PV_{18} is the present value of the purchase at 18 percent.

[28] Assumes no one can make the purchase due to unavailability of credit. The loss is then equal to the net value (in excess of the 18 percent cost of funds) of ownership. It is assumed that the purchase price would have been financed for the 10 year period. The underlying data are in Appendix Table 2.

[29] If the intent of limitations on creditor remedies is to reduce the undesirable aspects (to the debtor) associated with the collection of debts, then resources devoted to the collection process may be viewed as counter-productive by the legislators or regulators limiting remedies. Furthermore, if the intent of legislation restricting remedies has been to eliminate the harassment or personal tragedy associated with delinquency but not to prevent the repayment of legal debts, then the growing use of credit insurance would seem to be a more sensible alternative.

[30] It was assumed (based on some empirical observation) that the cost of processing one additional charge slip was about 5¢, that the cost of capital 8 percent and that the margin on goods was 6 percent, both after taxes. Problem account costs were imputed based on the income of the user and the data presented in Table 12. No fixed costs were included. Thus, S = finance charge revenues + .06 x sales - .05 x number of slips - .08 x average account balance - expected problem account costs.

[31] Since bad debt expense was assigned based only on income, the regressions were re-run excluding this from the computation of S. The results were substantially the same.

Footnotes (continued)

[32] Users with the following characteristics would generate an average deficiency of about $37:

Characteristic	Value
Income: $5001-$7500	-$24.50
Age: 25-34	-$ 4.70
Years with Employer: 1-2	-$ 8.20
Single	-$ 9.70
Rent	$ .90
Occupation: Technical Trades	-$ 6.30
SAMPLE MEAN	$15.50
DEFICIENCY OF COSTS OVER REVENUE	$37.00

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Accelerating Inflation and the Distribution of Household Savings Incentives

1979

Krannert Graduate School of Management – Purdue University

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ACCELERATING INFLATION AND THE DISTRIBUTION OF HOUSEHOLD SAVINGS INCENTIVES

Edward J. Kane*

Abstract

This study describes how accelerating inflation has led households in different economic and demographic classes to reallocate their "transactable savings." We use cross-section data from the 1962 and 1970 Surveys of Consumer Finances to estimate both the composition of accumulated household saving and prospective rates of return on this saving.

We show that accelerating inflation has, in the presence of comprehensive ceilings on deposit interest rates, altered the savings incentives of different types of households. The effect has been to bias small savers toward leveraged investments in tangible assets (especially real estate) and large savers toward certificates of deposit and marketable bonds. Small savers with disadvantaged access to credit are simply victimized.

Our analysis helps to explain a number of anomalous features of the 1975-1979 macroeconomic recovery, particularly the dominant role of consumer spending, the unprecedented expansion of household debt, the boom in housing, and declining flows of household savings into deposit institutions.

These data underscore the unintended consequences of trying to reconcile deposit-rate ceilings with accelerating inflation. This combination of policies unpleasantly distorts the sectoral composition of spending and risk-bearing (crowding out some productive business investment) and aggravates inequities in the distribution of income and opportunity.

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ACCELERATING INFLATION AND THE DISTRIBUTION OF HOUSEHOLD SAVINGS INCENTIVES*

Edward J. Kane

Political rhetoric characterizes inflation as a high-ranking public enemy that society must band together to fight. But this view is exaggerated. Real-world inflation is never uniform in its effects. While some prices shoot up rapidly, other prices move hardly at all, and a few even decline. Uneven movements in prices cause inflation to affect the economic welfare of different people differently. The distribution of costs and benefits across the population works through the distribution of assets, debts, and labor skills. Just as some homes are protected against floods or earthquakes, some households possess skills and balance sheets whose net market values are protected against inflation.

Even when society as a whole is doing little to stop inflation, a venturesome household can in principle defang inflation by suitably reallocating its wealth. It can do so by shifting its wealth (as far as transactions costs permit) into a collection of assets and liabilities whose overall rate of return promises to improve with anticipated and unanticipated increases in inflation. But most portfolios that protect against unanticipated inflation are speculative, in that they threaten to develop substantial losses if unanticipated deflation should ensue instead.

This study describes how, to cope with accelerating inflation, households in different economic and demographic classes reallocated their "transactable savings" in the middle and late 1960s. We define transactable savings to mean essentially noncontractual savings: savings that are not administered for households by insurance companies, pension funds, or the U.S. Social Security System.

We use cross-section data from the 1962 and 1970 Surveys of Consumer Finances to estimate both the composition of household portfolios of transactable savings and prospective rates of return on these portfolios. Our purpose is to cast some light on how accelerating inflation affects the savings incentives of different households and to map out resulting differences in the distribution of opportunities for accumulating personal wealth.

Our data set neglects claims on pension funds and wealth accumulated in collectibles, food inventories, and consumer durables that are not built into homes. Aggregate Flow of Funds data for the household sector developed by Cagan and Lipsey (1978) suggest that these unmeasured asset categories captured about half of the flow of net household saving between 1962 and 1970.[1] This proportion may be somewhat higher for younger and less-wealthy households.

As Cagan and Lipsey (1978) have shown, Flow of Funds data covering the household sector as a whole show virtually no change in balance-sheet ratios between 1962 and 1970. Moreover, although households' aggregate ratio of tangible to intangible assets rises sharply after 1972, Cagan and Lipsey argue that the increase can be attributed to capital appreciation on a relatively unchanging collection of assets with no need to presume an active shift into inflation-protected assets. The research reported here indicates that the apparent passivity in aggregate household portfolio ratios conceals some important shifts in asset-holding among wealth and age classes.

In the contemporary United States, the redistributive effects of accelerating inflation can only be understood in conjunction with longstanding federal and state policies to promote homeownership and housing construction whose qualitative effects on savings incentives vary with the rate of inflation. These policies consist principally of income-tax preferences available to homeowners and a grab-bag of programs and political forces that act to slow inflation-induced increases in the nominal rate of interest charged on mortgage funds.

Our analysis features the concept of regulation-constrained portfolio balance. We show that, both to hedge inflation risk inherent in their nontransactable savings and to eke out a positive net real after-tax rate of return on their transactable funds, all but the wealthiest U.S. households found it advantageous to substitute investments in housing and investment real estate (and presumably also in collectibles, food inventories, and consumer durables) for traditional financial vehicles for savings. Influenced by transactions-cost and tax differentials, the nation's oldest and wealthiest households shifted their transactable wealth differently. They moved on balance out of home equity and traditional deposit accounts into CDs, marketable bonds, and equity in investment real estate.

Although both patterns of portfolio rebalancing make sense *ex ante*, the resulting balance sheets are noticeably riskier than the portfolios held by the corresponding sets of households in 1962. When in the 1970s bond prices declined and stock values failed to increase with unanticipated inflation, real returns earned by most wealthy households took a beating *ex post*. These developments have left our nation's wealthiest households anxious and confused, particularly about the ability of common stocks to act as an inflation hedge. On the other hand, trends in housing prices have rewarded and reassured those generally less-wealthy investors that shifted heavily into real estate, especially those that dared to leverage themselves to the hilt.

Disaggregating household behavior, particularly by wealth and age, helps to explain a number of puzzling special features of the 1975-79 macroeconomic recovery. These special features include: the dominant role of consumer spending; unprecedented increases in household debt; changing patterns of financial intermediaton; the improving quality of owner-occupied housing; and the growing speculative boom in residential real estate. Our analysis portrays each of these developments as a reasonable response to changes in the savings incentives facing households of different means.

I. HOW ACCELERATING INFLATION HAS HURT THE SMALL SAVER

Some Preliminary Definitions.

It is convenient to begin with some definitions. By "small savers," we mean households of modest means: families whose accumulated net transactable wealth is less that $10,000. Returns on these savings may be expressed in several ways. Nominal rates of return are ratios of capital income to invested principal that make no correction for either anticipated or observed changes in the purchasing power of the sums to be lent and repaid. So-called market yields are invariably stated in nominal terms. Real rates of return are nominal rates less the rate of inflation anticipated or observed over the period during which the financial contract is held.

Anticipated inflation clearly affects the terms of loan contracts. Lenders want to negotiate a nominal rate of interest that exceeds the anticipated rate of inflation by what they take to be the "real" opportunity cost of their funds. In turn, borrowers can afford to pay nominal rates of interest that exceed the anticipated rate of inflation by the amount of the funds' perceived "real" productivity in the use they are going to serve. Hence, market interest rates tend to rise and fall with the level of anticipated inflation (Fisher, 1930). In addition, at any point in time an asset's nominal yield tends to rise with its subsequent inflation risk. Other things equal, the less perfectly an asset's nominal yield promises to rise with unanticipated future increases in inflation, the higher the nominal yield it must offer today (Fama and Schwert, 1977).

Explicit interest consists of returns to capital (coupon interest plus capital gains) that are paid, or are at least receivable in, the coin of the realm. Implicit interest covers services and other in-kind concessions that are often embodied in debt contracts. An asset's total rate of return is the sum of its explicit and implicit yields. Finally, an asset's net yield is its total rate of return minus any transactions costs associated with buying and selling the asset.

How Interest Ceilings Hurt Small Savers.

By raising expected rates of future inflation, observed accelerations in inflation tend to raise market rates of interest, although the response is not necessarily one-for-one and tends to be spread out in time. Rising market rates of interest mean improved loan and investment opportunities for lenders. When deposit institutions are allowed to compete freely for deposit funds, pursuing these opportunities bids up deposit interest rates.

On the other hand, when deposit rates are held down by government-imposed ceilings, small savers cannot directly participate as fully in rising market rates as large savers can. This is because it is more costly per dollar for small savers to move their funds into securities markets. For small accumulations of wealth, the costs in yield equivalent of acquiring marketable securities are substantial. First, most small savers find it expensive simply to acquire sufficient financial sophistication to identify and track suitable investment opportunities. Second, the structure of dealer and broker transactions charges prevents low-value investments in open-market instruments from being economical. Third, because marketable instruments are seldom issued in small denominations, small portfolios of marketable instruments are almost always imperfectly diversified and subject therefore to excessive default and interest-rate risk.

In fully competitive markets, retail financial institutions (called financial intermediaries) develop to overcome these disadvantages by indirectly pooling household funds into amounts that can be invested economically (Gurley and Shaw, 1960). The pooling is indirect because these firms (commercial banks, thrift institutions, insurance companies, and mutual funds) sell their own debt to households and invest the proceeds for their own accounts. Intermediation occurs with respect both to denomination and to portfolio risk and is typically coupled with provisions for delivering additional services (e.g., depository institutions offer liquidity and transactions services to their accountholders). To the extent that the costs of providing nonpecuniary services are not recouped through fee income, these services may be treated as implicit interest payments. However, unless the marginal value of a service is identical for all customers, the market is served more efficiently by seeking to cover costs through user fees.

In competitive equilibrium, the value of implicit and explicit interest payments to intermediary customers must at the margin equal the risk-adjusted yield that competing intermediaries expect to earn on market instruments after meeting expenses and paying normal returns on capital. If a depository intermediary were to pay less interest than this, competitors would bid its depositors away. If a depository intermediary incurred excessive expenses (perhaps in the process of subsidizing a disproportionate amount of nonpecuniary services) either explicit interest or returns on capital would slide below competitive norms. Either event would cause pressure on the intermediary's management to restore operating efficiency.

Effective ceilings on deposit interest rates undermine the efficiency of intermediation. They force depository institutions to compete exclusively in terms of implicit interest. They are led to expand their packages of subsidized customer services, often in imaginative ways. Such services include merchandise premiums, longer operating hours, superfluous branch offices or electronic teller machines, and "free" checking. The aggregate value of these services to individual customers is often far less than their cost to the depository institution. As individual customers attempt to make the best of what is for many of them a "bad" bargain, their use of undervalued services wastes economic resources.

Compared to the unregulated case, the efficiency of financial intermediation is also reduced by so-called disintermediation, which occurs when developing interest-rate differentials drive depositors to unregulated institutions and instruments. Whenever inflation drives open-market yields above the ceiling rates on deposits, higher-cost unregulated institutions (such as money-market mutual funds and credit unions) and unregulated instruments (such as repurchase agreements) are able to expand at the expense of traditional arrangements for intermediating household savings.

Effect of Accelerating Inflation on Financial Incentives Facing Small Savers.

Financial theory holds that wealthowners' demand for any asset varies directly with the net after-tax real rate of return it offers relative to returns available on other assets. It is also supposed that the level of household saving increases with the net after-tax real rate available on traditional savings vehicles, although the evidence for this is far from clear (Boskin, 1978; Wachtel, 1977;

Howrey and Hymans, 1978). During the last 15 years, unfavorable movements have occurred in marginal tax rates (which were only partly offset by increases in the standard deduction), in already-discriminatory dealer and broker transactions charges, and in the real (i.e., inflation-adjusted) values of interest-rate ceilings. Taken together, these changes have made it unrealistic for small savers to anticipate earning a positive net real rate of return on any collection of strictly *financial* assets. While financial instruments continue to offer implicit returns in the form of transactions, liquidity and diversification services, household savings invested in the types of financial assets available to nonwealthy households have shown reduced after-tax purchasing power with virtually every passing year.

To counterbalance the negative real after-tax rates of explicit return offered them by financial assets (and the roughly zero real returns accumulating on their nontransactable wealth), small savers have increased the weight of favorably taxed and inflation-protected *real* assets in their portfolios. To carry this off, they have had - as our survey data show - to supplement their accumulated savings with mortgage and instalment debt and to redirect their current savings into downpayments and debt service. Ironically, usury ceilings enacted in many states to improve small savers' access to credit probably interfered with this process. Theoretical and empirical analysis (Nathan, 1978) suggests that families who receive credit when usury ceilings are effective generally have above-average incomes and wealth. This occurs not just because such individuals are perceived as more creditworthy, though perceived creditworthiness may seem to dominate rejections of loan applications from members of minority groups (Sowell, 1975). What is often more important is that economically advantaged households can more easily increase deposit balances or meet increases in such up-front costs as higher downpayments or loan closing fees when lenders choose to exact implicit interest in such ways.

Unfavorable Movements in Marginal Tax Rates. Because progressive income taxes are levied on nominal incomes, accelerating inflation increases the effective tax rate that applies to every level of real income. However, legislated changes in the applicable tax structure provide some offset. As Table 1B shows, effective marginal tax rates were raised only for middle-income households. For example, using the implicit price deflator for GNP a taxable 1970 income of $30,000 corresponds to $23,173 in 1962 dollars. Using the tax schedule for joint returns with the same real (i.e., inflation-adjusted) taxable income at both dates, a taxpayer's marginal federal tax rate would be 40 percent in 1970, but only 38 percent in 1962. On balance, this taxpayer's average federal tax rate decreased from 28 percent in 1962 to 27 percent in 1970. Because ordinary income tax rates apply to all nominal interest received, for middle-income households these changes increased the attractiveness of assets that yield either in-kind services that are not taxed at all or capital gains that are taxed preferentially.

In many states, increases in state income taxes observed between survey dates further enlarged the wedge between before-tax and after-tax rates of return on nominal interest.

Unfavorable Movements in Transactions Costs in Securities Markets. In the face of comprehensive interest-rate ceilings on traditional household savings instruments, secularly and cyclically accelerating inflation causes disintermediation of household funds into potentially riskier high-yielding open-market instruments. Disintermediation implies a larger flow of small-denomination trades offered to securities dealers and brokers. During the late 1960s, the first waves of inflation-induced disintermediation created clearings logjams in the backrooms of securities firms. To reduce the volume of individual trades to be processed, securities firms repriced their services in ways designed to discourage small individual trades.

They instituted posted "ticket fees" on transactions of less than $100,000. The practice of imposing a charge of $10 to $20 merely for writing up a small purchase or sale transaction spread through the industry. For many types of trades, securities firms also raised value-based odd-lot fees, transactions minima, and execution lags. Even though computerization of transactions and partial deregulation of the securities industry have lowered costs for large transactors, ticket fees on small trades have risen. Currently, they range betweeen $25 and $40 per trade.

Discriminatory Adjustments in Deposit-Rate Ceilings. The larger is a household's wealth, the more alternative financial investment outlets it can economically consider. Larger savers can reallocate their portfolios to escape much of the *ex ante* burden that inflation and deposit-rate regulation would otherwise place on them. In contrast, poor households' principal avenue of adjustment is to cut back on their savings, a response that spreads the burden onto their future standard of living.

Larger savers' differential ability to escape deposit-rate ceilings explains why regulators have over time adapted the ceilings to permit deposit institutions to offer differentially higher interest rates to larger savers who can not be put off by high minimum denominations or punitive penalties for early withdrawal of time-deposit funds. Restrictions on minimum denomination and early-withdrawal penalties have been the cutting edge of a regulatory strategy of enabling deposit institutions to pay near-market interest rates to interest-sensitive depositors without raising yields offered to interest-*in*sensitive customers.

II. BEHAVIOR OF INFLATION AND INTEREST RATES DURING THE 1960s

Table 1 shows that long-term interest rates rose throughout the 1960s, with the rate of increase accelerating sharply (along with the rate of inflation) in the last half of the decade. For calendar-year holding periods, the last two columns report *ex post* returns on bonds and stock. From year to year, these *ex post* returns vary sharply.

Let us interpret the twin 1966 shocks of accelerating inflation and comprehensive deposit-rate ceilings as a joint experimental "treatment" and inquire how the treatment affected interest-rate spreads. Until 1966 when deposit-rate ceilings were first imposed on savings accounts at savings-and-loan associations (S&Ls) and mutual savings banks (MSBs), mean S&L deposit rates tended to fluctuate above the average level of yields on Treasury bills, roughly tracking the average yield on long-term Treasuries.

Subsequently, Treasury yields averaged steadily higher than S&L deposit rates. Whether this benefited mortgage borrowers is debatable, since even in the face of deposit-rate ceilings, mortgage rates regularly exceeded yields on long-term Treasuries, with the spread fluctuating within the same bounds that applied in the early 1960s.

From 1966 forward, high interest rates on new mortgages offered unusually good earnings spreads for mortgage lenders. However, federal officials feared that open competition for savings funds would bankrupt older S&Ls and MSBs that had to carry lots of low-rate mortgages on their books. With free competition, higher deposit rates would have to be paid on *all* accounts, while competitive mortgage rates could be earned *only* on current loans. Institutions holding substantial proportions of older low-rate mortgages would experience negative overall cash flows. Alternatively, one could say that higher current interest rates reduced the market value of many thrifts' seasoned long-term assets enough to exhaust their previously accumulated net worth. Restrictions on S&L and MSB deposit interest were introduced to prevent newer firms from ruining the older ones. To keep commercial banks at a disadvantage, ceilings for thrifts were initially set 50 basis points above those that applied to commercial banks. (This "differential" has since narrowed to 25 basis points.) Federal authorities conceived the system of ceilings as a temporary stopgap measure, intended to avert an immediate threat of financial panic and to avoid temporarily destablizing the flow of mortgage credit and homebuilding activity. They sought to assure specialized mortgage-lending institutions a positive net cash flow by locking in an above-market profit margin on new lending to offset the slim (or negative) spread on old lending, presumably only until interest rates turned down again cyclically.

Once the ceilings were in place, their justification broadened. In repeated battles over proposed legislation, a coalition of the thrift, labor, and construction lobbies has been able to defeat subsequent attempts to remove the ceilings. Since 1966, the large and cyclically fluctuating spread between open-market yields and passbook rates has accentuated cyclical disintermediation and reduced the flow of savings to these institutions during most of the cycle. To minimize the disruption, authorities have undertaken a series of additional actions. Regulatory officials adopted a strategy of restructuring deposit-interest ceilings in ways that promised to lessen the disintermediation without greatly increasing costs on interest-insensitive funds. Repeated restructurings have developed a series of deposit instruments that - by making the maximum interest payable on any type of deposit account vary directly with its maturity and/or minimum denomination - allow depository institutions to offer higher interest rates to interest-sensitive customers without extending higher payouts to interest-insensitive ones. Although large CDs are now completely exempt from regulation, between 1966 and 1970, deposit interest was unfettered only on certificate-of-deposit accounts of at least 90-days maturity and $100,000 in minimum denomination.

To make its own securities less competitive with thrift deposits, the Treasury held interest rates on U.S. Savings Bonds well below those on marketable securities of similar maturity: at 4.25 percent until December 1969, when they were raised to only five percent. The Treasury also acted in February 1970 to raise the minimum denomination of Treasury Bills from $1,000 to $10,000. Knowledgeable small savers had increasingly placed noncompetitive bids in $1,000 and $5,000 units, winning a larger and larger proportion of the total amounts awarded in the Treasury's weekly Bill auction (Mullineaux, 1973).

Investments in Real Estate and Consumer Durables as Opportunities for Escape.

During the post-1966 era, for households of modest means the inflation-adjusted after-tax rate of return has been negative on the few financial assets their transactable wealth permits them to buy. Even in the twenty-percent tax bracket, a 5.25 percent return on passbook savings yields only 4.20 percent after taxes. In the thirty-percent bracket, the after-tax yield falls to 3.68 percent. It is hard to remember when the rate of inflation in product prices did not exceed these low rates of return. This means that savings invested in these assets have less real value with each passing year.

In the absence of government-enforced ceilings on deposit interest rates, market forces would have pushed financial-institution deposit rates up at least enough to promise low-bracket depositors a small anticipated net yield. With deposit-rate ceilings in place and transactions costs keeping small savers out of bond and stock markets, many households have found that real-estate assets offer their transactable savings the best available protection against inflation-induced erosions in purchasing power. Real estate ownership has been a traditional goal for Americans and returns on real property have been taxed much more favorably than returns on financial assets. Federal tax treatment of a property's capital income is especially generous for owner-occupants. Real estate gained attractiveness under comprehensive deposit-rate ceilings because well-developed mortgage markets provided a convenient vehicle for small savers to leverage their modest saving enough to cover the purchase price of a residence or rental property. Institutional arrangements do not exist to let them borrow so easily to purchase stock shares or fixed-interest securities.

Ironically, restrictions on deposit interest have driven small savers increasingly _into debt_. Lacking enough wealth to invest directly in diversified round lots of marketable bonds and stocks and prevented by law from enjoying the full fruits of indirect investments in securities markets made by means of deposit accounts, they have turned to investing in real assets, supplementing their savings as necessary _via_ mortgages and instalment loan contracts. With interest expense tax deductible, real after-tax rates on loans made to support tax-favored investments seem unusually low.

Although this explanation is still not widely appreciated, small savers' efforts to protect their transactable wealth from being eaten away by artificially low deposit rates provide the motive force both for declines in recorded ratios of deposit-institution inflows to personal income and for an ongoing speculative boom in housing. In this way, deposit-rate ceilings have reinforced the secular inflation in housing costs and, by discouraging the flow of middle-income households' savings into strictly financial instruments, reduced the pool of savings available for new business investment too. Even though deposit-rate ceilings were intended to promote housing activity, authorities by no means meant to push it so assiduously or at such a high cost in macroeconomic destabilization.

III. LIMITATIONS OF OUR DATA BASE

Although the University of Michigan's Survey Research Center surveyed consumer finances throughout the 1960s, only the 1962 and 1970 survey questionnaires develop detailed information on household balance sheets.[2] Fortunately, the two years lie symmetrically four years before and four years after what we can call the twin economic-policy "crimes of '66." As we did with interest-rate spreads, we propose to interpret the twin economic-policy shocks of accelerating inflation and the spread of deposit-interest ceilings to thrift institutions as an experimental "treatment" and to view survey data collected in the two years as representative samples of pre-treatment and post-treatment values of household income and balance-sheet variables.

Table 2 lists the particular survey variables investigated in this study. Unfortunately, assets are not valued on a consistent basis. Respondent family units were requested to furnish _face values_ for bonds but to estimate _market values_ for stocks and investment real estate. They were asked to estimate the "present value" of owner-occupied real estate (which we call _homes_) if they had resided there during the second calendar year preceding the year of the survey; otherwise they were asked merely to supply the home's _purchase price_. No matter how accurately they may be able to value their assets, secretive people or families whose members had reason to conceal assets from each other would have an incentive to underreport their holdings. Forgetfulness would cause underreporting, too. On the other hand, a desire to impress interviewers might tempt some respondents toward boastful overstatement.

Clearly, as compared to contemporaneous transactions values, estimates gathered in this way should have some systematic biases and should be more accurate for some asset categories than for others. For example, information needed to estimate the value of a household's stock portfolio is more readily accessible than that needed to appraise real estate. When housing prices are rising especially quickly, household estimates may tend to lag market values. As discount instruments, the values of unmatured U.S. Savings Bonds or Treasury Bills would be consistently overstated. Similarly, the generally upward trend of interest rates in the 1960s leads us to suspect that the market value of Other Bonds would on average fall short of face value. The reader should keep these difficulties in mind in interpreting our results.

Even in our two focal years, values for most types of what we call "nontransactable" assets and most debts were not reported at all. A few variables were reported in one year only. As Table 2 indicates, across the two years some variables are defined differently or are available in different detail.

Whatever one does to correct for these conceptual difficulties, one should also recognize that SCF samples deliberately over-represent high-income families and that SCF data tapes required careful editing to adapt them to our use. A few observations appear more than once on SCF data tapes. Occasional overflows occur in capital income and in individual assets, while in the 1970 survey partially incomplete reports pose some difficult problems.[3] In particular, differences in the accuracy and completeness of respondent reports across conventional income and age classes change the representativeness of our samples relative to the population of U.S. households. Omissions and overflows should occur predominantly for households whose incomes and wealth are high, and result in an understatement of assets held by these groups. This measurement bias partly offsets the sampling bias Survey Research Center personnel created by oversampling high-income households.

IV. CONSOLIDATED BALANCE SHEETS FOR HOUSEHOLDS IN DIFFERENT AGE AND WEALTH CLASSES.

In analyzing SCF data, we seek to identify how average asset-holding patterns differ with household income, transactable wealth, and the age, sex and race of the household head. Our principal focus is to determine the extent to which households in different economic and demographic circumstances shifted their transactable wealth among three classes of assets for which survey measurements exist:

1. Equity in real estate: defined as the difference between the value of investment real estate and owner-occupied housing (i.e., "homes") and the dollar amount of household debt secured by these properties;
2. Regulated financial assets: deposits and U.S. Savings bonds;
3. Unregulated financial assets: stocks, marketable bonds, and mutual funds.

The purpose of the exercise is to investigate how the combined burdens of inflation and interest-rate ceilings are distributed across the population of U.S. households. We are concerned particularly with determining how these burdens are distributed across different types of families and how they have affected the mix of debt and equity assets in household portfolios.

Given the structure of income taxes, transactions costs and interest-rate ceilings, a household's ability to take advantage of regulation-exempt and tax-avoiding savings opportunities may be expected to increase with its income (the "income hypothesis") and its transactable wealth (the "wealth hypothesis"), and to be influenced by its place in the life cycle (the "age hypothesis") and possible membership in minority groups (the "minority hypothesis"). By analyzing cross-section data on earnings, assets, debt and demographic characteristics collected in the 1962 and 1970 *Surveys of Current Finances*, the rest of this paper develops evidence that supports a more preceise formulation of each of these hypotheses.

Looking backward from 1979, it should be clear that *ex post* the big losers from accelerating inflation have been family units possessing large amounts of stock, "regulated assets" (deposits and U.S. Savings bonds) and/or those who did not own any real-estate assets at all. While wealthy households tend to be heaviest in stock, households that fit the rest of this profile turn out to be drawn disproportionately from the ranks of the old, the black, the female, the poor, and the young. Particularly in competing for mortgage loans, these groups are traditionally disadvantaged (Sowell, 1975). Moreover, with accelerating inflation, deposit-interest ceilings heighten that disadvantage by driving up both the cost of housing and the demand for mortgages by other groups, while reducing the disadvantaged families' ability to accumulate the financial wherewithal to make an acceptable downpayment.

Testing the Age Hypothesis: Consolidated Balance Sheets for Households Classified by Age

Survey data depicting the composition of household assets indicate that between 1962 and 1970 the combination of accelerating inflation and deposit-rate ceilings has markedly changed the age distribution of real-estate ownership. This is shown in Table 3. Even as early as 1970, households whose heads were less than 55 years in age had sharply increased the proportion of their accumulated savings held as equity in real estate, while older households had shifted their funds out of both real estate[4] and "regulated financial assets" (deposits and U.S. savings bonds) into "unregulated financial assets" (stocks, marketable bonds, and mutual funds). Moreover, within their holdings of regulated assets, older households moved funds from other categories into CDs. In 1970, survey households whose heads were 55 or older owned approximately 55 percent of reported net transactable wealth, but 75 percent of total CDs, deposits, and stock-market investments and 85 percent of marketable bonds. In 1962, this age group owned approximately 40 percent of respondents' net transactable wealth, and (except that they held only 15 percent of marketable bonds) allocated their funds fairly evenly across individual asset categories.

Presumably, older households find the in-kind return on housing less valuable as their children grow up and set up households of their own. However, they could afford economically to undertake these reallocations because they are on average large savers. Also at issue are the development of experience and efficient patterns for accumulating and decumulating wealth to smooth consumption over the life cycle. Our treatment approach implicitly attributes observed changes in portfolio distributions between 1962 and 1970 to differences in the ability of households of different ages to protect themselves both against increases in inflation and inflation risk and against unfavorable regulatory developments in financial markets. By hypothesis, 1962 portfolio patterns are determined predominantly by life-cycle considerations. However, since the 1962 survey was taken about a year into a cyclical recovery and the 1970 survey at the beginning of an economic decline, cyclical influences affect the results, too. During the months of the 1962 survey, unemployment was cyclically high but falling. In 1970, unemployment was low but rising. Although aggregate unemployment rates were not greatly different, unemployment among males aged 20 to 24 averaged 11.2 percent in the 1962 survey months and only 7.7 percent during the 1970 interview period.

From the treatment perspective, young households' dramatic increase in the proportions of their transactable wealth placed in regulated assets and real-estate equity is particularly intriguing. Households whose heads are under 25 quadrupled the portfolio weight carried by the 1962 counterpart. (Even if we eliminate one outlying wealthy household from the age-class sample, the 1970 portfolio weight for home equity is still 2.5 times its 1962 value.) Because households in the youngest age class had generally smaller families in 1970 than in 1962 (so that they presumably found the continuing services of a given living space less productive), they must have anticipated substantial future appreciation in housing prices to justify this allocational pattern. It is possible that this inflation-spawned increase in the propensity of young families to undertake leveraged homeownership reflects as well a generational difference in both borrowers' and lenders' attitudes toward risk-bearing. With the young having to live with the consequences of accelerating inflation over a longer economic horizon than anyone else, in the face of contemporary inflation modern lending officers and would-be young borrowers may be less inhibited psychologically by conventional attitudes about the alleged "prudence" of "staying out of debt." But, as we show in Section V, even this massive portfolio reallocation was insufficient to bring the average 1970 portfolio rate of return for this age class up to the level earned by older households.

To show that our results measure a true generational difference, we can reclassify the data to emphasize that the cohorts of households belonging to each age group differ substantially between survey dates. Table 4 resets the boundaries of the 1962 age classes to let us compare portfolio weights for the same age cohorts at each survey date. This table makes it clear that household heads who are less than 25 years old in 1970 were not even sampled in 1962. Otherwise, it confirms the age-class and generational paterns of asset accumulation and decumulation inferred from Table 3. Further analysis (not reproduced here) indicates that allowing for the effects of housing-price appreciation on each age cohort's 1962 investment in housing does not change the qualitative pattern of age-class portfolio reallocation.

Table 4B indicates that, whatever assets are ultimately supported by real-estate debt (Arcelus and Meltzer, 1973), most age classes (especially the youngest) carry in 1970 a larger proportion of this debt in their portfolios. Even more important, the observed reallocation of the housing stock among age groups has shifted ownership on balance from families who traditionally carry low debt ratios to younger households who show much higher ratios of mortgage debt to home equity and transactable wealth. This explains how the aggregate proportion of home equity to net transactable wealth can actually decline between the survey dates.

Evidence on the Accuracy of the Estimated Value of Owner-Occupied Housing

In valuing household real-estate investments, the two main sources of measurement error are: (1) reliance on self-assessment and (2) the neglect of price appreciation on homes purchased in the year preceding the survey date. These errors are worrisome because they threaten to prove reinforcing. Taken together, they might cause a serious understatement of home equity.

Bias Due to Neglecting Depreciation on Recently Purchased Homes. Turning to the second issue first, Table 5 develops information on the four percent of 1970 survey respondents who had purchased their homes in 1969. The U.S. Commerce Department estimates that the average sales price of houses sold in 1969 increased 4.9 percent, with the rate of price increase greater in the first half of the year than in the second. In the first half of 1970, prices increased another 0.7 percent. Since the survey instrument did not ascertain precisely when in 1969 individual homes were acquired, our calculations assume that by the survey date each of these homes had experienced six months' appreciation in 1969 (2.5 percent) plus a further 0.7 percent in 1970. Except in the youngest age class, the effect of accounting for this appreciation is negligible. Even for this class, when raw data are employed, the portfolio weight for home equity rises only by 1.2 percentage points.

Assessment Bias. Respondents' self-assessments of the value of their homes may be inaccurate because homeowners who do not actively participate in housing markets have a poor idea of trends in house prices. In Table 6, we develop evidence by which to investigate whether, given the inflationary surge in house prices during the 1960s, homeowners who had occupied the same residence for various periods of time consistently undervalued their property in 1970.

To do this, we report data on housing values at each survey date by the year in which homeowners first occupied their homes. We extrapolate the values estimated in 1962 forward to 1970, using cumulative rates of increase observed in average housing prices. These projections are meant to be compared with roughly parallel assessments quoted by respondents in 1970.

Unfortunately, the data do not permit precise comparisons. First, 1962 and 1970 SCF data tapes aggregate reported years of occupation into largely noncomformable intervals. Hence, the two data sets place different boundaries on the date-of-occupation variable. Second, since indices of average housing prices are available only from 1963, the first observations on year-to-year changes in housing prices date from 1964. To fill in the gap for 1962 and 1963, we used movements in the GNP Price Deflator to proxy the rate of housing-price inflation. Finally, since data published on housing prices cover only new houses, we need to hypothesize that on average homeowners upgrade older houses to incorporate most of the comforts being built routinely into newer structures.[5] What we call our "low projections" track changes in the value of a hypothetical house whose attributes are fixed. Our "high projections" track changes in the value of the specific types of houses constructed and sold in each year.

Since the assessments made by respondents in 1970 average near the high projections of comparable 1962 estimates, our data suggest that (at least in the aggregate) self-assessment is not a serious source of downward bias.

Testing the Wealth Hypothesis: Consolidated Balance Sheets for Households Ranked By Their Net Transactable Wealth

For both survey dates, Table 7A reports consolidated portfolio weights for households grouped by their decile of net transactable wealth. The observed changes in portfolio patterns by wealth class confirm earlier analyses (Kane, 1970 and 1977) of post-1966 disintermediation. Sophisticated households with sizeable amounts of savings can and do shop among a variety of assets. By 1970, they could rearrange their financial-asset portfolios to lessen the burden that deposit-interest ceilings would otherwise have placed on them. Moreover, the longer the ceilings remained in force, the more fully financial markets and institutions could adapt to help them. The rapid growth of money-market mutual funds and credit unions - and the development of small-denomination bonds by large corporate issuers - provide examples of this adaptation. Relaxing the ceilings on minimum-denomination and longer-maturity certificates of deposits allows the nation's wealthier households to earn higher explicit deposit rates at banks and thrift institutions than ordinary families can. For small savers, possibilities for adapting their financial portfolios are severely limited and have been further compressed by government action to reduce disintermediation, notably the 1970 increase in the minimum denomination of U.S. Treasury Bills. Providing they can obtain debt financing, small savers lessen the burden of low ceiling rates of interest on regulated financial assets principally by investing directly in homes, investment real estate, and consumer durables.

Hence, in Table 7A, between 1962 and 1970 we see that through the sixth decile portfolio weights for regulated financial assets fall while the weights for real-estate equity rise. Although households in the seventh decile of wealth show much the same portfolio weights at both dates, between 1962 and 1970 savers in the eighth and ninth deciles undertake some marked shifts in the allocation of their transactable wealth. Looking simultaneously at Table 7B which develops more detailed data on financial assets, we see that these households moved funds proportionately out of investment real estate, common stocks, checking accounts and savings bonds into high-rate CDs and (to a lesser extent) into other savings accounts.

Finally, families in the highest-wealth decile (whose actions loom very large in aggregate figures), reduced their home equity and moved out of every type of regulated asset except CDs. Unlike middle-wealth households who decreased the portfolio weight for common stock or low-wealth households who increased it, the highest-wealth households held steady. They increased their portfolio weights for only three asset categories: CDs, marketable bonds, and investment real estate.

V. ESTIMATED 1970 WEIGHTED-AVERAGE RATES OF RETURN FOR EACH AGE AND WEALTH CLASS

Our explanation of the changing distribution of household savings across assets presumes that households reallocate their funds as far as possible to escape the costs that accelerating inflation and deposit-rate regulation would otherwise impose upon them. To clarify how this process affects ex-ante portfolio returns, Table 8A uses proxies for anticipated 1970 asset yields to translate the portfolio proportions of Tables 3 and 7 into weighted-average anticipated rates of return for each age and wealth class. Because these calculations neglect discriminatory variation across wealth classes in the rates of return earned on deposits, they provide conservative estimates of the degree to which returns on financial assets differ with a household's transactable wealth and position in the life cycle. On the other hand, reporting bond values on a face-value basis systematically overweights yields on the bond portion of household portfolios. Since bond holdings tend to rise with wealth and age, at least the two biases are offsetting in direction.

Specifically, the calculations reported in Table 8A employ the following estimates of the annual average yield that might have been anticipated on individual assets in 1970:

1. Yield on Demand Deposits = 6.36 percent (Stevens, 1976)[6]
2. Yield on Savings Deposits = 5.06 percent (Table 1).
3. Yield on U.S. Savings Bonds: 5.00 percent (Yield set on new U.S. savings bonds in December, 1969).
4. Yield on Other Bonds: 6.58 percent (Table 1, Long-Term Treasury Bond Yields)
5. Yield on Stocks and Mutual Funds: 8.5 percent [Mean Annual Return on Common Stocks, 1926-1974 (Ibbotson and Sinquefeld, 1976)].
6. Yield on Equity in Home: 8.45 percent (Table 1, FHLBB Mortgage Interest-Rate Series).
7. Yield on Equity in Investment Real Estate: 9.86 percent [Average Interest Rates on Income Property Mortgages, American Life Insurance Association, cited in Gettel (1976, p. 108)].

Our proxies for the last four yields are chosen conservatively, especially on a before-tax basis. Yields on shorter instruments, taxable-equivalent yields on municipals, and yields on corporate bonds averaged much higher than yields on long-term U.S. governments. Moreover, although the ex post yield on stocks was only 4.01 percent in 1970, anticipated yields on common stocks almost certainly exceeded the rate of inflation. For two-year and three-year holding periods, realized per-annum yields on common-stock investments made in 1970 averaged 9.0 and 12.2 percent respectively. Over 1901-1971, Friend and Blume (1975) estimate mean per-annum yields on stocks of 9.0 percent.

Most importantly, although yields on both forms of real-estate equity should equal corresponding mortgage interest rates at the margin, average anticipated returns figure to be much higher. Our estimates of ex-ante real-estate yields may be excessively conservative. Although a telephone survey of trade associations in St. Louis, Chicago, and Washington could uncover no direct data on real-estate returns, information in the files of the General Services Administration's Appraisal Staff supports using an ex-ante per-annum return of just over 12.00 percent in 1970. Diamond (1979) estimates (net of anticipated price appreciation) a before-tax "user cost of capital" of 12.49 percent for owner-occupied housing in 1970. Hendershott and Hu (1979) report estimates of this cost in 1964, 1972, and 1978, for households in three different tax brackets and under two alternative models for forming expectations of future price appreciation. Hendershott and Hu's estimates range between 12 and 13 percent for households in their lowest tax bracket.

Table 8B develops alternative, less-conservative estimates of portfolio rates of return for households in our ten wealth and six age classes. These estimates assume higher anticipated returns on other bonds (8 percent) and on both forms of real-estate equity (12 percent).

Under either set of assumptions, anticipated 1970 yields on regulated financial assets average less than 6.00 percent. Even without formal calculations, it is obvious that overall rates of return will be highest for classes with low percentages of their transactable wealth in these assets and high percentages in unregulated assets and real-estate equity. Because deposit-rate regulation artificially restricts the rewards offered on low-risk assets, households have been encouraged to occupy riskier and less-than-perfectly-diversified balance-sheet positions.

Tables 8A and 8B develop two remarkable results. First, while households in the lowest deciles have simply been short-changed, households in the middle wealth deciles used investments in real estate to offset a good portion of the discriminatory effect of deposit-rate ceilings on the yields they could earn on strictly financial assets. Although differences in marginal tax rates importantly affect the desirable breakdown between running yield and price appreciation, combined portfolio yields differ much less by wealth than financial yields do. Second, along with the very poor, young households (those whose head is under 25 years of age) emerge as the group most severely burdened by the double-whammy of accelerating inflation and interest-rate ceilings. This may occur because these households realize a lower in-kind running yield from a given living space or because they have a hard time competing for mortgage funds, especially when state usury ceilings are binding on mortgage interest rates. Whatever the reason, unlike other age classes in 1970, young families were able to use real-estate investments to eliminate only about half of the gap between the yield on their portfolio and that earned by members of the modal class.

Even the conservative estimates in Table 8A indicate that on a before-tax basis households in the middle and upper wealth classes were able in 1970—by taking on additional portfolio risk—to anticipate earning a positive real rate of return even on their financial assets. Whether after-tax real yields are positive as well depends on the breakdown of these returns between explicit running yields, implicit yields, and price appreciation. However, households in the various wealth classes reached out for this yield along different effective risk-return loci and took on quite-distinct risks. Unanticipated developments over the decade of the 1970s (particularly, unanticipated inflation) made shifts into real-estate equity look even smarter ex post and movements into unregulated assets look bad.

VI. TESTING THE MINORITY HYPOTHESIS: CONSOLIDATED 1970 BALANCE SHEETS AND ESTIMATED PORTFOLIO YIELDS FOR FAMILIES IN DIFFERENT DEMOGRAPHIC CIRCUMSTANCES

Accelerating inflation and deposit-rate ceilings tax the poor to finance "welfare" for the rest of us. In their distributional effect,they are equivalent to a confiscatory federal tax that falls on the financial wealth of small savers only and whose proceeds are designated to subsidize homebuilders, homeowners, and managers and/or stockholders of inefficient depository institutions.[7]

Besides stock-market investors, after-the-fact losers in the game of accelerating inflation cum deposit regulation have been families of modest means who concentrate their savings in regulated assets and/or do not own any real-estate at all. Compared to other respondents, these families are drawn disproportionately from the ranks of the black,the female, the poor, and the young. In competing for mortgages, these groups are traditionally portrayed as disadvantaged. However, deposit-interest ceilings aggravate that disadvantage by driving up both the cost of housing and demands for mortgages among other groups, while reducing the disadvantaged sectors' ability to accumulate an acceptable downpayment.

For four different demographic groups, Table 9 shows how household asset allocations and anticipated portfolio returns varied with net transactable wealth in 1970.[8] Less than ten percent of the lowest-wealth households were able to participate in real-estate ownership. They placed the bulk of their wealth in regulated assets (deposits and U.S. savings bonds). Within each group, wealthier households proved increasingly able to use both real-estate and securities investments to secure an anticipated positive net real rate of return on their overall portfolios.

Distinguishing between real-property owners and nonowners in the same four demographic groups, Table 10 shows how 1970 portfolio weights and anticipated yields varied by age class. In each demographic group, the proportion of young families that own real property is low. However, it is almost uniformly lower for female-headed families than for male-headed families and for black families than for white ones.

For the same groups that are featured in Table 10, Table 11 presents 1970 portfolio weights and anticipated yields by household income. Households with less than $7500 in 1970 income are about evenly divided between real-property owners and nonowners, but within this category female-headed families (especially black ones) prove less likely to own real estate.

VII. SUMMARY OF FINDINGS

Evidence developed in this paper establishes the role of real estate as the ordinary citizen's chief hope against accelerating inflation, at least in the presence of comprehensive deposit-rate ceilings. By expanding their proportionate holdings of real estate, households with below-average wealth were able in the late 1960s to earn positive real after-tax rates of portfolio return despite painful interest-rate ceilings on the deposits and savings bonds in which their transactable wealth had traditionally been concentrated. By discriminatorily reducing the efficiency of financial intermediation, interest-rate ceilings have biased investments by small savers toward tangible assets (especially real estate) and investments by very large savers toward unregulated financial assets.

Although these reconstituted portfolios made sense in 1970, they appear unnecessarily risky *ex ante* for both groups. With real-estate investments protected against unanticipated inflation and stocks and bonds proving surprisingly vulnerable to it, so far the nation's wealthiest households have fared less well ex post than the average homeowner. However, precisely because homeowners' portfolios of transactable wealth are protected against unanticipated inflation, they remain exposed to substantial deflation risk. As they come to realize this, homeowners may begin to function politically as an explicit constituency *for* inflation.

Other remarkable findings concern the increased emphasis on leveraged housing investment among the very young. Between 1962 and 1970, households headed by persons under 25 years of age greatly expanded equity in homes, although not enough to lift estimated yields on their savings up to the level achieved by older groups. Since the implicit yield on a given home tends to increase with family size, along with older households contemporary young families may be disadvantaged in the running yields that they can earn on equity invested in homes. In addition, binding ceilings on mortgage interest rates tend to restrict young persons' ability to finance desired purchases of homes.

Our data also show that, between 1962 and 1970, direct holdings of marketable bonds and stock have become more tightly concentrated in the hands of wealthy investors. This development supports the hypothesis that at least in 1970 only wealthy households could economically engage in strictly financial-market disintermediation. This explains why federal banking and S&L regulators settled on the strategy of relaxing deposit-rate ceilings only on minimum-denomination and longer-maturity accounts. This approach conserves depository-institution profits by allowing them to increase the yields offered to interest-sensitive customers without simultaneously raising yields on interest-insensitive funds. However, regulators must recognize that, even among small savers, interest sensitivity tends to increase with the length of time that sizeable interest-rate differentials remain in force.

Finally, our analysis provides a more balanced perspective on the supposedly unfavorable trends of falling funds flows to traditional savings institutions and rising ratios of household debt to income. These developments reflect not profligacy but households' willingness to expose themselves to deflation risk in hopes of enhancing the real value of their accumulated savings. Aggregate household saving is alive and well, but it is taking some unconventional and risky forms. More and more, prudent households are focusing on building up a speculative investment portfolio of inflation-protected tangible assets to supplement their holdings of strictly financial assets.

Table 1. Inflation Rates and Mean Annual Return on Selected Instruments, 1961 to 1970

(Stated in Percent Per Annum)

Year	Interest Rate on New Issues of Three-Month U.S. Treasury Bills	Yield on Long-Term Treasury Bonds	FHLBB Series of Effective Mortgage Interest Rates on New Homes	Yield on Savings Accounts in Savings Associations	Annual Change in Implicit Price Deflator for GNP	Ex-Post Returns	
						on Corporate Bonds	on Common Stocks
1961	2.38	3.90	. . . .	3.90	0.9	4.82	26.89
1962	2.78	3.95	. . . .	4.08	1.0	7.95	-8.73
1963	3.16	4.00	5.91[a]	4.17	0.6	2.19	22.80
1964	3.55	4.15	5.85[a]	4.19	0.8	4.77	16.48
1965	3.95	4.21	5.81	4.23	1.5	-0.46	12.45
1966	4.88	4.65	6.25	4.45	2.6	0.20	-10.06
1967	4.33	4.85	6.46	4.67	2.6	-4.95	23.98
1968	5.34	5.26	6.97	4.68	3.9	2.57	11.06
1969	6.69	6.12	7.81	4.80	4.7	-8.09	-8.50
1970	6.44	6.58	8.45	5.06	4.5	18.37	4.01

Sources: Business Conditions Digest for U.S. Treasury interest rates and changes in the GNP deflator.

U.S. League of Savings Associations, Savings and Loan Fact Book (annual) for mortgage rates and savings-account yields.

Ibbotson and Sinquefeld (1976) for returns on common stocks.

[a] December figures.

Table 1B. Effective Federal Tax Rates on Equivalent Real Taxable Incomes for Households Filing Joint Returns in 1962 and 1970

Taxable Income in 1970 Dollars	Equivalent Taxable Income in 1962 Dollars	1962 Marginal Tax Rate on 1962 Equivalent Income	1970 Marginal Tax Rate (Includes 2.5% Surtax)	1962 Average Tax Rate	1970 Average Tax Rate
1,000	772	.20	.15	.20	.14
5,000	3,862	.20	.195	.20	.17
10,000	7,724	.22	.226	.21	.19
20,000	15,448	.30	.328	.24	.22
30,000	23,173	.38	.400	.28	.27
50,000	38,621	.53	.513	.36	.35
100,000	77,243	.69	.636	.49	.46
500,000	386,214	.90	.718	.78	.66

Source: Equivalent 1962 real incomes are calculated using the Implicit Price Deflator. Joint-Return tax schedules are taken from Federal Tax Handbook, 1963, Englewood Cliffs: Prentice-Hall, 1962 and 1971 U.S. Master Tax Guide, Chicago: Commerce Clearinghouse, 1970.

Table 2. List of Variables Generated from the 1962 and 1970 Surveys of Consumer Finances for Use in This Study

Variable Name	Variable Symbol	Available in 1962?	Available in 1970?
A. Financial Assets	FA	Calculated	Calculated
1. Regulated Assets	RA	Calculated	Calculated
a. Checking Accounts		Yes	Yes
b. Savings Accounts		Yes	Calculated
i. Certificates of Deposit		No	Yes
ii. Other Savings Accounts		No	Yes
c. U. S. Savings Bonds (Face Value)		Yes	Yes
2. Unregulated Assets	UA	Calculated	Calculated
a. Stocks and Mutual Funds (Market Value)		Yes	Yes
b. Bonds other than U. S. Savings Bonds (Face Value)		Calculated	Yes
i. U. S. Government Bonds		Yes	No
ii. Municipal Bonds		Yes	No
iii. Corporate Bonds		Yes	No
B. Real-Estate Assets	REA	Calculated	Calculated
1. Home, Farm, or Mobile Home			
a. Equity	HE	Yes	Yes
b. Market Value	HV	Yes	Yes
2. Investment Real Estate (Including Land Contracts)			
a. Equity	IRE	Yes	Yes
b. Estimated Market Value	IRV	Yes	Yes
C. Real-Estate Debt	RED	Calculated	Calculated
1. Value of Mortgages on Home, Farm, or Mobile Home		Yes	Yes
2. Value of Mortgages on Investment Real Estate		Yes	Yes
D. Explicit Income in the Previous Calendar Year			
1. Total Household Income	Y	Yes	Yes
2. Capital Income (Dividends, Interest, Trust Funds, Royalties, and Rent)	YC		
a. Of Whole Household	YCWH	Yes	No
b. Of Head Only	YCH	No	Yes
E. Age of Head	AGE	Yes	Yes

Table 3. Percentage Breakdown of Households' Portfolios of Transactable Financial Assets and Real-Estate Equity by Age Class in 1962 and 1970

(Proportions Stated in Percentage Points)

	Financial Assets			Real-Estate Equity			
Age of Household Head (in years)	Regulated	Unregulated	Total	Total	Equity in Home	Equity in Investment Real Estate	Percent of Sample Respondents
1962 Data Set							
Under 25	19.5	57.4	76.9	23.2	8.8	14.4	9.1
(Under 25 deleting Wealthy Outlier)	(29.0)	(33.7)	(62.7)	(37.2)	(14.1)	(23.1)	(9.1)
25 to 34	18.9	12.2	31.1	68.9	48.1	20.8	19.5
35 to 44	13.1	20.1	33.2	66.8	50.2	16.6	23.4
45 to 54	14.6	20.0	34.6	65.4	51.0	14.4	19.5
55 to 64	17.6	17.7	35.3	64.7	47.1	17.6	13.3
65 and over	27.0	12.8	39.8	60.2	42.0	18.2	15.3
2,117 Respondents	18.1	17.9	36.0	64.0	47.1	16.9	100.1
1970 Data Set							
Under 25	44.8	8.7	53.5	46.5	36.1	10.4	10.0
25 to 34	19.9	8.1	28.0	72.1	53.2	18.9	18.3
35 to 44	14.4	14.7	29.1	71.0	47.7	23.3	18.9
45 to 54	15.7	10.4	26.1	73.8	55.0	18.8	20.0
55 to 64	16.9	27.5	44.4	55.7	37.3	18.4	16.5
65 and over	21.2	25.9	47.1	52.8	32.6	20.2	16.3
2,576 Respondents	17.8	20.2	38.1	61.9	42.1	19.8	100.0

Source: Calculated from Survey of Consumer Finances data tapes. (For a description of these surveys, see G. Katona, L. Mandell, and J. Schmiedeskamp, 1970 Survey of Consumer Finances, Ann Arbor: Survey Research Center, Institute of Social Research, 1971.)

Note: Sums of components of totals shown may not add to 100.0 because of rounding.

Table 4. Percentage Breakdown of Households' Portfolios of Transactable Financial Assets and Real Estate Equity by Normalized Age Class in 1962

(Proportions Stated in Percentage Points)

	Financial Assets			Real-Estate Equity			
Age of Household Head (in years)	Regulated	Unregulated	Total	Total	Equity in Home	Equity in Investment Real Estate	Percent of Sample Respondents
1962 Data Set							
Under 17	0	0	0	0	0	0	0
17 to 26	19.1	47.0	66.1	33.9	13.2	20.7	12.2
(17 to 26 deleting Wealthy Outlier)	(25.2)	(27.2)	(52.4)	(47.5)	(18.5)	(29.0)	(12.2)
27 to 36	16.1	22.9	39.0	61.0	41.1	19.9	21.3
37 to 46	13.0	12.8	25.8	74.3	58.8	15.5	21.8
47 to 56	15.0	21.4	36.4	63.5	50.5	13.0	19.5
57 and over	23.9	14.3	38.2	61.9	42.8	19.1	25.2
2,117 Respondents	18.1	17.9	36.0	64.0	47.1	16.9	100.0

Notes: Same as Table 3.

Table 4B: Ratios of Household Real-Estate Debt to Various Asset Totals by Age Class in 1962 and 1970

(Proportions Stated in Percentage Points)

Age of Household Head (in years)	Home-Mortgage Debt to Home Value	Total Real Estate Debt to Total Value of Real Estate	Total Real Estate Debt to Total Value of Assets Held
1962 Data Set			
Under 25	67.0	46.9	17.0
25 to 34	57.2	52.3	43.0
35 to 44	42.1	37.6	28.7
45 to 54	25.7	25.2	18.0
55 to 64	17.0	14.7	10.1
65 and over	4.0	4.5	2.8
2,117 Respondents	30.4	27.3	19.4
1970 Data Set			
Under 25	73.6	68.8	50.7
25 to 34	59.4	54.2	46.0
35 to 44	42.7	38.2	30.5
45 to 54	27.4	28.1	22.4
55 to 64	11.7	13.8	8.2
65 and over	7.2	5.6	3.1
2,576 Respondents	29.3	26.4	18.2

Source: Calculated from Survey of Consumer Finances data tapes.

Table 5. Effects of Unreported Appreciation in Value of Homes Acquired in 1969 On Portfolio Weights, by 1970 Age Class

Age of Household Head (in Years)	Percentage of Respondents in the Age Class that Acquired Homes in 1969 (in percent)	Reported Value of Homes Acquired in 1969 (in $ million)	Value of 1969 Acquisitions as a Percentage of Home Value Reported by the Full Age Class (in Percent)	Calculated Increase in Value of Homes Acquired in 1969 (in $ million)	Reported Equity in Homes Acquired in 1969 (in $ million)	Calculated Survey-Date Equity in Homes Acquired in 1969 (in $ million)	Additional Home Equity In 1969 Acquisition Relative to Survey Reports (in percent)
1970 Data Set							
Under 25	5	0.21	39	0.01	0.04	0.05	7.1
25 to 34	8	0.65	15	0.02	0.17	0.19	1.1
35 to 44	7	0.91	11	0.03	0.37	0.40	0.6
45 to 54	3	0.24	3	0.01	0.11	0.12	0.2
55 to 64	2	0.17	2	0.01	0.09	0.10	0.2
65 and over	1	0.12	3	0.00	0.08	0.08	0
2,576 Respondents	4	2.31	7	0.07	0.85	0.92	0.3

Notes: Same as Table 3.

Table 6. Constructing Housing-Value Projections That Cast Light on Aggregate Assessment Bias

Year in Which Homeowner Moved Into Current Home	Aggregate Est. Value of Homes Occupied in Designated Years (in $ Thousand)	Number of Households Moving in During the Designated Years	Average Estimated Value of Designated Homes (in $ thou.)	High Projection of Value in 1970 (in $ thou.)	Low Projection of Value in 1970 (in $ thou.)
1962 Data Set					
1939 or earlier	2,386	163	14.64	21.96	19.47
1940-1949	3,120	229	13.62	20.43	18.11
1949 or earlier*	5,506	392	14.05	21.08	18.69
1950-1954	3,575	258	13.86	20.78	18.43
1955-1960	6,972	455	15.32	22.98	20.38
1960 or earlier*	16,053	1,105	14.53	21.80	19.32
1961	1,153	79	14.59	21.89	19.40
1962	64	4	16.00	24.00	21.28
1970 Data Set					
1945 or earlier	4,474	229	19.54	...	...
1946-1955	6,666	333	20.02	...	...
1956-1960	5,474	238	23.00	...	...
1960 or earlier*	16,614	800	20.77	...	...
1961-1965	8,283	373	22.21	...	...

Source: Same as Table 3

Notes: Projections for 1970 employ a cumulative growth factor generated by multiplying year-to-year changes in two "extended" indices of housing prices (U.S. Department of Commerce, 1977). The "high projection" combines the rate of increase in the GNP price deflator for 1962 and 1963 with the Commerce Department's series of changes in the average sales price of new houses actually sold in each of the years 1964 through mid-1970. The estimated cumulative inflation factor is 50 percent. The "low projection" replaces year-to-year changes in the prices of houses sold in each year with changes in the average sales price of the kinds of houses sold in 1974. This produces a cumulative inflation factor of only 33 percent.

The symbol * indicates observations constructed by summing aggregate values in the preceding categories.

Table 7A. Percentage Breakdown of Households' Portfolios of Transactable Financial Assets and Real-Estate Equity by Decile of Net Transactable Wealth, 1962 and 1970

(Proportions Stated in Percentage Points)

Wealth Decile	Financial Assets			Real-Estate Equity			Upper Boundary of Decile (in dollars)
	Regulated	Unregulated	Total	Total	Equity in Home	Equity in Investment Real Estate	
1962 Data Set							
1	0.0	0.0	0.0	0.0	0.0	0.0	0
2	100.0	0.0	100.0	0.0	0.0	0.0	100
3	88.2	1.3	89.5	10.5	10.5	0.0	741
4	50.0	5.3	55.3	44.7	41.9	2.8	2,250
5	29.1	3.5	32.6	67.5	60.5	7.0	4,900
6	18.1	4.9	23.0	77.0	70.9	6.1	7,700
7	14.6	4.6	19.2	80.7	73.6	7.1	10,838
8	16.5	5.6	22.1	78.0	64.8	13.2	16,800
9	17.6	9.2	26.8	73.2	57.3	15.9	28,901
10	17.3	27.7	45.0	55.0	33.6	21.4	874,000
2,117 Respondents	18.1	17.9	36.0	64.0	47.1	16.9	. . .
1970 Data Set							
1	0.0	0.0	0.0	0.0	0.0	0.0	0
2	92.0	4.0	96.0	4.0	4.0	0.0	290
3	76.7	2.9	79.6	20.4	17.0	3.4	1,525
4	36.6	5.5	42.1	57.9	50.9	7.0	4,660
5	19.9	3.4	23.3	76.7	68.7	8.0	8,800
6	14.8	3.4	18.2	81.7	76.0	5.7	13,101
7	15.5	3.1	18.6	81.4	74.6	6.8	18,600
8	20.5	5.6	26.1	73.9	65.0	8.9	27,750
9	23.6	7.3	30.9	69.1	57.0	12.1	50,300
10	15.3	31.1	46.4	53.5	25.9	27.6	1,654,997
2,576 Respondents	17.8	20.2	38.0	62.0	42.1	19.8	. . .

Notes: Sums of components of totals shown may not add to 100.0 because of rounding. Zeroes are recorded in every column for the lowest wealth decile because members of this decile report no assets or real-estate equity. Because we chose not to split identical wealth values across neighboring deciles, this first "decile" actually represents 15.7 percent of the sample in 1962 and 11.1 percent in 1970. To balance out these overflows, corresponding second deciles contain 4.6 percent and 8.7 percent respectively. No other wealth decile in our samples contains less than 9.9 percent or more than 10.1 percent of the cases.

Table 7B. Percentage Breakdown of Households' Portfolios of Transactable Financial Assets by Decile of Net Transactable Wealth, 1962 and 1970

(Proportions Stated in Percentage Points)

Wealth Decile	Checking Accounts	Savings Accounts	CDs	U.S. Savings Bonds	Other Bonds	Stocks and Mutual Funds	Total Financial Assets
1962 Data Set							
1	0	0	...	0	0	0	0
2	66.7	33.3	...	0	0	0	100.0
3	38.2	47.1	...	13.2	0	1.5	100.0
4	15.7	61.8	...	12.9	0	9.6	100.0
5	14.4	60.5	...	14.4	0	10.7	100.0
6	17.3	49.5	...	12.1	0.3	20.8	100.0
7	13.5	50.7	...	11.9	0	24.0	100.1
8	15.3	46.4	...	13.0	0.2	25.1	100.0
9	9.2	47.0	...	9.5	0.4	34.0	100.1
10	4.9	24.5	...	9.1	1.6	59.9	100.0
2,117 Respondents	7.6	32.7	...	9.9	1.1	48.6	100.0
1970 Data Set							
1	0	0	0	0	0	0	0
2	58.3	29.2	0	8.3	0	4.2	100.0
3	31.1	56.7	1.2	7.3	0.6	3.0	99.9
4	20.5	57.6	1.2	7.7	0	13.1	100.1
5	19.2	58.5	2.5	5.2	0	14.5	99.9
6	14.1	58.8	2.5	6.0	0	18.6	100.0
7	11.7	58.0	4.0	9.7	0.1	16.5	100.0
8	9.5	51.9	7.8	9.4	0.1	21.3	100.0
9	7.1	52.4	10.5	6.3	1.8	21.9	100.0
10	2.9	16.4	9.6	4.0	7.3	59.7	99.9
2,576 Respondents	5.3	27.6	8.9	5.0	5.4	47.8	100.0

Notes: Same as Table 7A.

Table 8A. Estimates of Anticipated 1970 Portfolio Rate of Return for Each Age Class and Wealth Decile

(Stated in Percent Per Annum)

Decile Ranking of Households' Net Transactable Wealth	Yield on Financial Assets Only	Combined Yield on Financial Assets and Real-Estate Equity
1	...	...
2	5.96	6.06
3	5.57	6.21
4	5.77	7.42
5	5.81	7.95
6	5.88	8.06
7	5.78	8.05
8	5.91	7.91
9	5.93	7.84
10	7.26	8.29
2,576 Respondents	6.85	8.12
Age of Household Head (in years)		
Under 25	5.81	7.18
25 to 34	6.20	8.09
35 to 44	6.86	8.32
45 to 54	6.46	8.19
55 to 64	7.10	8.11
65 and over	6.88	8.00
All Respondents	6.85	8.12

Source: Calculated from portfolio weights shown in Tables 3 and 7, using yield assumptions stated in the text.

Table 8B. Less-Conservative Estimates of Anticipated 1970 Portfolio Rate of Return for Each Age Class and Wealth Decile

(Stated in Percent Per Annum)

Decile Ranking of Households' Net Transactable Wealth	Yield on Financial Assets Only	Combined Yield on Financial Assets and Real-Estate Equity
1	. . .	. . .
2	5.96	6.20
3	5.58	6.89
4	5.77	9.38
5	5.81	10.56
6	5.88	10.88
7	5.78	10.84
8	5.91	10.41
9	5.95	10.13
10	7.37	9.85
2,576 Respondents	6.93	10.07
Age of Household Head (in years)		
Under 25	5.82	8.69
25 to 34	6.23	10.38
35 to 44	6.88	10.51
45 to 54	6.51	10.56
55 to 64	7.20	9.87
65 and over	6.97	9.63
All Respondents	6.93	10.07

Source: Calculated from portfolio weights shown in Tables 3 and 7, using yield assumptions stated in the text.

Note: As compared to the estimates reported in Table 8A, these calculations assume higher anticipated rates of return on other bonds (8 percent), home-owner equity (12 percent), and equity in investment real estate (12 percent).

Table 9. Average Portfolio Patterns and Yield by Race and Net Transactable Wealth, for Male-Headed Family Units in 1970

(Except Where Indicated, All Figures in Percent)

	Dollar Value of Wealth For Male-Headed White Households								Dollar Value of Wealth For Male-Headed Black Households							
	Less Than 1000	1000 to 4999	5000 to 9999	10000 to 24999	25000 to 49999	50000 to 99999	100000 to 249999	250000 or More	Less Than 1000	1000 to 4999	5000 to 9999	10000 to 24999	25000 to 49999	50000 to 99999	100000 to 249999	250000 or More
Panel A: All Family Units in the Survey																
Percentage of Portfolio Placed in Regulated Financial Assets	88	40	20	17	23	24	17	5	89	23	7	8	8	16	14	6
Percentage in Unregulated Financial Assets	5	7	5	4	7	14	27	49	0	3	4	7	0	61	0	0
Percentage in Real-Estate Equity	7	54	75	79	70	62	56	47	11	74	89	86	92	23	86	94
Estimated Mean Per Annum Portfolio Yield	6.02	7.34	7.94	8.02	7.86	7.92	8.28	8.68	5.72	7.91	8.29	8.34	[illegible]	7.97	9.05	8.24
Number of Survey Respondents	393	256	237	517	255	142	65	19	82	37	27	26	[illegible]	1	2	1
Aggregate Value of Family Portfolios (in $ million)	0.08	0.07	1.75	8.47	8.80	9.67	9.80	11.01	0.01	0.11	0.19	0.35	0.14	0.06	0.21	0.25
Panel B: Family Units Without Real Property																
Percentage of Portfolio Placed in Regulated Financial Assets	96	88	79	81	77	97	50	—	100	33	22	—	—	—	—	—
Percentage in Unregulated Financial Assets	4	12	21	19	23	3	50	—	0	17	78	—	—	—	—	—
Percentage in Real-Estate Equity	0	0	0	0	0	0	0	—	0	0	0	—	—	—	—	—
Estimated Mean Per Annum Portfolio Yield	5.78	5.69	5.93	5.78	5.88	5.17	6.78	—	5.38	5.85	7.74	—	—	—	—	—
Number of Survey Respondents	367	104	26	19	8	6	3	—	78	5	1	—	—	—	—	—
Aggregate Value of Family Portfolios (in $ million)	0.07	0.22	0.18	0.30	0.26	0.37	0.44	—	0.01	0.01	0.01	—	—	—	—	—

Source: Calculated from 1970 Survey of Consumer Finances data tapes.

Notes: Detail may not add to totals because of rounding error and classification problems.

Each family in the stratified sample represents about 25,000 demographically similar households. Interest-Rate assumptions used to calculate portfolio yields are explained in the text.

Table 9. (continued) Average Portfolio Patterns and Yield by Race and Net Transactable Wealth, for Female-Headed Family Units in 1970

(Except Where Indicated, All Figures in Percent)

	Dollar Value of Wealth For Female-Headed White Households								Dollar Value of Wealth For Female-Headed Black Households							
	Less Than 1000	1000 to 4999	5000 to 9999	10000 to 24999	25000 to 49999	50000 to 99999	100000 to 249999	250000 or More	Less Than 1000	1000 to 4999	5000 to 9999	10000 to 24999	25000 to 49999	50000 to 99999	100000 to 249999	250000 or More
Panel A: All Family Units in the Survey																
Percentage of Portfolio Placed in Regulated Financial Assets	86	51	32	23	29	28	18	11	71	20	8	5	0	—	—	—
Percentage in Unregulated Financial Assets	5	6	0	4	7	30	42	80	0	0	0	0	0	—	—	—
Percentage in Real-Estate Equity	10	42	68	74	65	42	40	9	29	80	92	95	100	—	—	—
Estimated Mean Per Annum Portfolio Yield	5.98	6.79	7.50	7.81	7.64	7.70	8.23	8.23	6.41	8.05	8.34	8.43	8.45	—	—	—
Number of Survey Respondents	116	54	36	76	56	21	6	1	67	9	9	10	1	—	—	—
Aggregate Value of Family Portfolios (in $ million)	0.02	0.14	0.26	1.20	1.89	1.55	0.93	0.32	0.01	0.03	0.06	0.14	0.04	—	—	—
Panel B: Family Units Without Real Property																
Percentage of Portfolio Placed in Regulated Financial Assets	94	88	100	77	89	64	2	—	100	100	—	—	—	—	—	—
Percentage in Unregulated Financial Assets	6	12	0	23	11	36	98	—	0	0	—	—	—	—	—	—
Percentage in Real-Estate Equity	0	0	0	0	0	0	0	—	0	0	—	—	—	—	—	—
Estimated Mean Per Annum Portfolio Yield	5.72	5.55	5.12	5.84	5.48	6.31	8.42	—	5.37	5.37	—	—	—	—	—	—
Number of Survey Respondents	109	33	6	7	4	2	1	—	61	3	—	—	—	—	—	—
Aggregate Value of Family Portfolios (in $ million)	0.01	0.08	0.04	0.12	0.13	0.17	0.21	—	.004	.004	—	—	—	—	—	—

Source: Calculated from 1970 Survey of Consumer Finances data tapes.

Notes: Detail may not add to totals because of rounding error and classification problems.

Each family in the stratified sample represents about 25,000 demographically similar households. Interest-Rate assumptions used to calculate portfolio yields are explained in the text.

Table 10. Average Portfolio Patterns and Yield by Race and Age of Male Heads of Household, For Family Units with and Without Real Property

(Except where Indicated, All Figures in Percent)

	Age of White Male Head in Years						Age of Black Male Head in Years					
	Less Than 25	25 to 34	35 to 44	45 to 54	55 to 64	65 or More	Less Than 25	25 to 34	35 to 44	45 to 54	55 to 64	65 or More
Panel A: Family Units With Some Real Property												
Percentage of Portfolio Placed in Regulated Financial Assets	20	15	12	14	14	19	67	18	10	6	5	13
Percentage in Unregulated Financial Assets	5	8	15	11	29	26	0	5	25	0	0	0
Percentage in Real-Estate Equity	75	77	73	75	57	55	33	77	65	94	95	87
Estimated Mean Per Annum Portfolio Yield	8.09	8.27	8.41	8.29	8.23	8.08	6.62	8.27	8.16	8.37	8.86	8.67
Number of Survey Respondents	38	222	304	324	252	209	2	17	23	30	13	13
Aggregate Value of Family Portfolios (in $ million)	0.22	2.84	9.28	9.76	13.12	13.16	0	0.14	0.20	0.58	0.21	0.23
Panel B: Family Units Without Real Property												
Percentage of Portfolio Placed in Regulated Financial Assets	83	84	84	83	78	68	100	100	57	100	0	0
Percentage in Unregulated Financial Assets	17	16	16	17	22	32	0	0	43	0	0	0
Percentage in Real-Estate Equity	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Mean Per Annum Portfolio Yield	5.85	5.79	5.78	5.77	5.82	6.20	5.03	5.58	6.65	5.06	0	0
Number of Survey Respondents	156	148	68	70	44	47	9	22	16	16	12	9
Aggregate Value of Family Portfolios (in $ million)	0.12	0.18	0.23	0.25	0.56	0.51	0	0.01	0.02	0	0	0

Source: Calculated from 1970 Survey of Consumer Finances data tapes.

Note: Detail may not add to totals because of rounding error and classification problems.

Table 10. (continued) Average Portfolio Patterns and Yield by Race and Age of Female Heads of Household, For Family Units with and Without Real Property in 1970

(Except where Indicated, All Figures in Percent)

	Age of White Female Head in Years						Age of Black Female Head in Years					
	Less Than 25	25 to 34	35 to 44	45 to 54	55 to 64	65 or More	Less Than 25	25 to 34	35 to 44	45 to 54	55 to 64	65 or More
Panel A: Family Units With Some Real Property												
Percentage of Portfolio Placed in Regulated Financial Assets	23	20	26	24	21	20	—	0	4	7	3	7
Percentage in Unregulated Financial Assets	0	3	2	4	20	22	--	0	0	0	0	0
Percentage in Real-Estate Equity	77	77	72	72	59	58	--	100	96	93	97	93
Estimated Mean Per Annum Portfolio Yield	7.87	7.84	7.72	7.78	7.93	8.03	—	8.45	8.37	8.46	8.47	8.30
Number of Survey Respondents	2	8	21	30	64	78	--	4	6	9	5	8
Aggregate Value of Family Portfolios (in $ million)	0.02	0.11	0.27	0.63	2.07	2.47	—	0.01	0.05	0.08	0.07	0.07
Panel B: Family Units Without Real Property												
Percentage of Portfolio Placed in Regulated Financial Assets	94	97	100	81	84	46	100	100	100	100	100	0
Percentage in Unregulated Financial Assets	6	3	0	19	16	54	0	0	0	0	0	0
Percentage in Real-Estate Equity	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Mean Per Annum Portfolio Yield	5.39	5.22	5.14	5.73	5.70	6.92	5.47	5.06	5.06	5.03	5.06	0
Number of Survey Respondents	33	22	21	20	19	47	10	17	17	7	8	5
Aggregate Value of Family Portfolios (in $ million)	0.02	0.03	0.03	0.09	0.06	0.53	0	0	0	0	0	0

Source: Calculated from 1970 Survey of Consumer Finances data tapes.

Note: Detail may not add to totals because of rounding error and classification problems.

Table 11. Average Portfolio Patterns and Yield by Race and Income, For Male-Headed Family Units With and Without Real Property

(Except Where Indicated, All Figures in Percent)

	Dollar Income of Male-Headed White Households								Dollar Income of Male-Headed Black Households							
	Less Than 3000	3000 to 4999	5000 to 7499	7500 to 9999	10000 to 14999	15000 to 24999	25000 to 49999	50000 or More	Less Than 3000	3000 to 4999	5000 to 7499	7500 to 9999	10000 to 14999	15000 to 24999	25000 to 49999	50000 or More
Panel A: Family Units With Some Real Property																
Percentage of Portfolio Placed in Regulated Financial Assets	14	20	22	13	18	18	10	5	4	2	10	9	15	10	21	--
Percentage in Unregulated Financial Assets	5	4	3	5	11	18	40	61	0	0	2	6	0	38	0	—
Percentage in Real-Estate Equity	81	76	75	82	71	64	50	34	96	98	88	85	85	52	80	--
Estimated Mean Per Annum Portfolio Yield	8.28	8.25	8.10	8.53	8.12	8.08	8.44	8.33	8.34	8.42	8.68	8.47	8.26	8.42	8.63	—
Number of Survey Respondents	75	91	158	217	425	296	70	17	24	11	23	19	14	5	2	—
Aggregate Value of Family Portfolios (in $ million)	1.59	2.71	4.41	5.83	9.84	11.65	6.37	5.96	0.44	0.06	0.26	0.22	0.15	0.11	0.12	--
Panel B: Family Units Without Real Property																
Percentage of Portfolio Placed in Regulated Financial Assets	96	56	96	96	76	74	62	—	0	0	100	100	100	47	—	—
Percentage in Unregulated Financial Assets	4	44	4	4	24	26	38	--	0	0	0	0	0	53	—	--
Percentage in Real-Estate Equity	0	0	0	0	0	0	0	—	0	0	0	0	0	0	—	—
Estimated Mean Per Annum Portfolio Yield	5.31	6.68	5.37	5.33	5.92	5.98	6.49	—	0	0	5.49	5.47	5.21	7.03	—	—
Number of Survey Respondents	71	79	110	106	117	42	8	—	20	13	16	14	17	4	—	--
Aggregate Value of Family Portfolios (in $ million)	0.11	0.21	0.17	0.17	0.72	0.39	0.09	—	0	0	0	0	0.01	0.02	—	--

Source: Calculated from 1970 Survey of Consumer Finances data tapes.

Note: Detail may not add to totals because of rounding error and classification problems.

Table 11. (continued) Average Portfolio Patterns and Yield by Race and Income, For Female-Headed Family Units With and Without Real Property in 1970

(Except Where Indicated, All Figures in Percent)

	Dollar Income of Female-Headed White Households								Dollar Income of Female-Headed Black Households							
	Less Than 3000	3000 to 4999	5000 to 7499	7500 to 9999	10000 to 14999	15000 to 24999	25000 to 49999	50000 or More	Less Than 3000	3000 to 4999	5000 to 7499	7500 to 9999	10000 to 14999	15000 to 24999	25000 to 49999	50000 or More
Panel A: Family Units With Some Real Property																
Percentage of Portfolio Placed in Regulated Financial Assets	21	23	21	18	23	21	17	11	5	9	7	7	0	—	--	--
Percentage in Unregulated Financial Assets	8	15	11	8	27	36	0	48	0	0	0	0	0	—	--	--
Percentage in Real-Estate Equity	71	62	68	74	50	42	83	41	95	91	93	93	100	--	—	--
Estimated Mean Per Annum Portfolio Yield	7.87	7.89	8.01	8.16	7.74	7.98	7.92	8.23	8.36	8.20	8.48	8.47	8.48	—	—	--
Number of Survey Respondents	61	42	40	30	17	10	2	1	10	5	7	6	4	—	—	--
Aggregate Value of Family Portfolios (in $ million)	0.97	1.38	0.82	0.67	0.57	0.98	0.08	0.11	0.08	0.02	0.04	0.07	0.06	—	—	—
Panel B: Family Units Without Real Property																
Percentage of Portfolio Placed in REgulated Financial Assets	97	92	56	79	79	2	—	--	100	100	100	0	0	100	—	--
Percentage in Unregulated Financial Assets	3	8	44	21	21	98	--	—	0	0	0	0	0	0	—	--
Percentage in Real-Estate Equity	0	0	0	0	0	0	--	--	0	0	0	0	0	0	--	—
Estimated Mean Per Annum Portfolio Yield	5.20	5.37	6.63	5.83	5.85	8.42	—	—	6.36	5.06	5.03	0	0	5.03	—	--
Number of Survey Respondents	67	32	37	15	10	1	--	--	31	18	11	1	2	1	—	--
Aggregate Value of Family Portfolios (in $ million)	0.16	0.12	0.17	0.08	0.03	0.21	--	—	0	0	0	0	0	0	—	—

Source: Calculated from 1970 Survey of Consumer Finances data tapes.

Note: Detail may not add to totals because of rounding error and classification problems.

FOOTNOTES

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[1] Between 1962 and 1970, net acquisition of claims on pension funds averaged a fairly steady 22 percent of household asset acquisitions. Year by year, this proportion varied only between 20 and 24 percent. Net acquisitions of consumer durables averaged about 29 percent of household acquisitions, and the proportion ranged year by year between 21 and 36 percent.

[2] Katona et al. (1963 and 1971) reproduce copies of the survey instruments. As explained by Hansmire (1976) the SCF was discontinued after 1970. Her essay includes a summary statement of just what variables were measured in each year. Under the sponsorship of the three federal banking agencies, the Survey Research Center conducted a partly similar Consumer Credit Survey in 1977. In future research, I plan to compare changes in household balance sheets across the three survey dates.

[3] Because incomplete records often show substantial values for one or more specific categories of assets, in compiling portfolio distributions, we chose to treat missing values as true zeroes.

[4] It is interesting to note that in 1978 federal tax law was changed to increase the special tax forgiveness for capital gains on sales of personal residences by older taxpayers from $35,000 to $100,000 and the minimum age for qualifying for this benefit was lowered from 65 to 55. To secure this change, older households (especially those in the 55-to-64 age class) must have complained bitterly about the government's growing tax take on these transactions.

[5] To communicate the types of quality improvements that are occurring, Harter (1979) reports that between 1970 and 1977 new one-family houses increased in size and amenities. The median square footage increased from 1510 square feet to 1720 square feet, while the percentage of homes that included each of the following features increased as follows: a dishwasher (from 42 percent to 82 percent); two or more bathrooms (from 48 to 70 percent); one or more fireplaces (from 35 to 61 percent); and a garage (from 58 to 68 percent).

[6] Of the four financial yields we estimate, this is the only one that features an implicit component. We treat this series asymmetrically because implicit returns dominate competition for demand deposits.

[7] In the case of mutual institutions, availability of these subsidies may have intensified managerial incentives for converting to a stock charter.

[8] Our analysis of minority portfolios ignores a relatively small number of disparate nonwhite respondents who are nonblack.

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RATES OF RETURN ON GNMA SECURITIES: THE COST OF MORTGAGE FUNDS

Kenneth B. Dunn and John J. McConnell*

Abstract

This paper examines rates of return earned on GNMA securities over the period January 1971 through June 1978. We find that over this period the mean monthly return on GNMAs was greater than the mean return on long-term government bonds and slightly greater than the mean return on high-grade corporate bonds. However, in neither case was the difference statistically significant. Thus, based on this evidence, it is not possible to conclude that the cost of acquiring funds to finance single-family housing purchases through the GNMA program exceeded the cost of acquiring funds by the U.S. treasury or financially-strong corporations.

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I. Introduction

This paper examines rates of return earned on GNMA mortgage-backed securities over the period January 1, 1971 through June 30, 1978. The concept of rate of return earned on a security generally refers to the investor's perspective, but the concept can also be applied to the party on the other side of the transaction, i.e., the issuer of the security. In this case, the nominal issuer of the security is a mortgage company, a savings and loan association, or a mutual savings bank, but the true underlying issuers are the mortgagors who issue the loans that "back" the security. Thus, rates of return earned on GNMA securities represent the "cost" of financing house purchases through the GNMA program over the period examined.[1]

This paper is motivated in part by papers and articles that have appeared in the academic and financial press concerning "yields" on GNMA securities. These publications note that the measured yields on GNMAs have persistently exceeded measured yields not only on long-term government bonds, but also on Aaa-rated corporate bonds ([6], [7], [11], [12], [18]). This observation is puzzling because the default risk on GNMA securities is equivalent to that of treasury bonds and marginally less than that of Aaa-rated corporate debt. One implication that is often drawn from these yield comparisons is that the cost of acquiring funds in the capital market for the purchasers of single-family housing substantially exceeds the cost of acquiring funds not only by the Federal government, but also by financially-strong corporations. Thus, it is often concluded that purchasers of single-family housing participate at a disadvantage in the capital market even when they are backed by the "full faith and credit" of the U.S. government. A second implication which is often implicit, but occasionally stated explicitly, is that GNMA securities have been and continue to be improperly priced by the capital market. For example, Curley and Guttentag [6] state:

> It is obvious that the market price of a financial instrument is not its "true value" if the expected yield the buyer associates with that price has not been correctly calculated. This is generally the case with outstanding residential mortgages. It is only by accident that these mortgages are correctly priced, i.e., that the yield expected at the transaction price is the yield correctly implied by that price.

We believe that such conclusions are unjustified and arise because of a misinterpretation of what information is and is not contained in estimated ex ante yields on fixed-income securities.

There is another and, we believe, superior approach to drawing inferences about the relative pricing of alternative securities and, by implication, the relative "cost" of obtaining funds by alternative security issuers. If we specify an ex ante relationship between the returns on alternative securities and if we assume that, on average, expectations by market participants are realized (i.e., if we assume "rational" expectations obtain) we can use ex post data to test ex ante relationships.

Thus, this study has two primary purposes. The first is to clarify some aspects of computed "yields" on fixed income securities with particular emphasis on their application to GNMA securities. The second purpose is to compare the "cost" of obtaining funds through the GNMA program with the cost of obtaining funds by the U.S. government and by financially-strong coprorations.

The following section contains a discussion of pitfalls encountered when *ex ante* yields are used to draw inferences about the pricing of GNMAs and other fixed-rate securities. Section 3 presents a relative pricing model for interest contingent claims. This model motivates the statistical analysis conducted in Sections 4 and 5. The final section contains a summary and some conlcuding remarks.

II. GNMA "Yields" and the Pricing of GNMA Securities

It is generally recognized that comparisons of "yields" among fixed income securities are likely to provide very little information about the relative prices of those securities. This is because the yield is a derived number. Given the price of a security and a set of future cash payments to be made on the security, it is always possible to compute a yield. It is not possible to go the other direction. That is, it is not possible to use a security's yield to determine what its price should be, except under very limited circumstances.[2]

First, if two securities have identical future cash flows in every period, then their prices should be identical. As a consequence, so should their *ex ante* yields. Unfortunately, in that situation, computation of the securities' yields is redundant, since their prices can be compared directly. Thus, we may conclude that two GNMAs with the same coupon interest rates, the same maturities, and issued on the same date should have the same yield. But that merely says that they should sell at the same price. We cannot compare the yield on the GNMA with that on a government or corporate bond and draw any conclusion about their relative prices unless the comparison securities also have identical future cash flow distributions (which they do not).

The second situation in which yields can be compared is when: (1) all future spot rates of interest are equal; (2) the future spot rates are known with certainty; and (3) the future cash flows to each security are known with certainty. If these three conditions hold, then the computed ex ante (and ex post) yields on all securities should be equal even though their prices are not.

However, even if the first two conditions are met, it would not be possible to draw any conclusions about GNMA prices based upon their yields because the future cash flows to GNMAs are not known with certainty. Underlying each GNMA security is a pool of mortgage loans. Each of these loans is callable at par immediately after issuance. Thus, a rational mortgagor will call his loan whenever the current market interest rate falls below the coupon rate on the loan. However, one additional peculiarity of GNMA securities is that the issuers of the underlying loans often call (or prepay) their loans when the market interest rate is above the coupon rate on their loans. These "suboptimal" loan prepayments represent an additional stochastic component of the cash flow stream. Thus, (except at maturity) the cash flow at the end of any future time period is uncertain.

To circumvent this problem, GNMA yields are customarily computed on the basis of "average" life rather than term-to-maturity. Because thirty-year maturity mortgage loans on residential property have, on average, been prepaid in twelve years, yields are computed under the assumption that all of the loans in the pool will be fully prepaid at the end of the twelfth year. This procedure represents at best an ad hoc approach to recognizing the uncertainty associated with future cash flows on GNMAs.

In an attempt to provide greater precision to the computation of GNMA yields, Curley and Guttentag [6] have used historical data to estimate the average fraction of mortgage loans prepaid in each policy year after issuance. These fractions represent point estimates of the probability of loan repayment in each year after issuance. Using these point estimates, they compute a yield to expected maturity. While this procedure is an imaginative extension of the customary procedure used to compute GNMA yields, it too is unlikely to be useful in providing information about GNMA prices or the relative "cost" of mortgage funds.

The problem with the Curley and Guttentag approach is that it imputes a set of expectations to market participants. Because the imputed distribution may differ from the market's estimated distribution, it is not possible to conclude that the market's expected yield is greater or less than the expected yield on some other security, nor is it possible to conclude that the market has "improperly" priced GNMAs relative to other securities. To see this point, consider a standard one-period example. A security is issued at time 0. At time 1, the security will provide some random payoff. Based on some set of expectations about the time 1 distribution of cash payoffs, capital market participants will determine a time 0 price for the security. We may observe the security's price, but we cannot observe investors' expectations about the time 1 distribution of cash flows.

If we were to impute a time 1 distribution of cash flows, we could then impute an expected return on the security. However, on the basis of this expected return we may not conclude that the market has improperly priced this security relative to any other security. Nor is it possible to conclude that the market's expected return on this security is higher than the expected return on any other security. In essence, either conclusion implies that market participants have improperly assessed the distribution of future cash flows. Unfortunately, it is not possible to distinguish between that possibility and the possibility that the imputed distribution of cash flows is not the "correct" one. Thus, even in a single-period setting (in which the term structure problem is irrelevant) the procedure used by Curley and Guttentag cannot distinguish between these two possibilities.

However, there is an alternative approach that will allow us to draw conclusions about the prices of GNMAs and about the relative "cost" of mortgage funds. If we assume that, conditional upon the set of information relevant to the pricing of these securities, capital market participants form unbiased assessments of the future returns distribution, and if we specify a testable relationship between returns on GNMA securities and the returns on other securities, then we can use ex post data to test ex ante relationships. This is the procedure typically used in tests of the capital asset pricing model with stock market data ([4], [5], [9], [10]) and it is the one that we adopt here.

III. The Model

In order to test hypotheses about the pricing of GNMA securities, it is necessary to have a general model for the pricing of fixed-income or interest contingent securities. Such a model has been developed by Cox, Ingersoll and Ross [8]. With their model, if we assume that: (1) the instantaneous expected returns on GNMA securities, U.S. treasury bonds, and Aaa-rated corporate bonds are dependent only upon the current rate of interest for instantaneous risk-free borrowing and lending;[3] (2) all three securities are default-free; (3) the interest rate elasticity is the same for all three securities; and (4) the stochastic "prepayment" cash flows on GNMAs are uncorrelated with the instantaneous rate of interest and all other fundamental economic factors, it can be shown that the instantaneous expected rate of return on a GNMA security is equal to the instantaneous expected rate of return on a U.S. treasury bond and/or an Aaa-rated corporate bond.

Some discussion of our assumptions is appropriate. Cox, Ingersoll and Ross [8] develop their model under the first assumptions as a special case. The second assumption is an approximation. While U.S. treasury bonds and GNMAs are default-free, the same is not true for Aaa-corporate bonds. Although the probability of default for high-grade bonds is small, it is, nevertheless, positive. The third assumption says that, for a given change in the rate of instantaneous risk-free borrowing and lending, the prices of the three securities will change by equal proportional amounts. The last assumption is equivalent to the assumption that the "risk" associated with the stochastic prepayment cash flows on GNMAs is fully diversifiable or, within the capital asset pricing model framework, it is nonsystematic risk.

As a consequence, investors cannot expect to be compensated to bearing this component of total risk.

Undoubtedly these assumptions do not all obtain exactly in practice. However, they do permit us to specify potentially refutable hypotheses about the pricing (i.e., returns) of GNMAs relative to those of the comparison securities. Furthermore, the model on which the hypotheses are based is a rigorously derived equilibrium model for the pricing of interest dependent claims. The question of whether or not the model adequately describes the pricing of fixed-rate securities (and whether or not our assumptions grossly violate the "true" characteristics of these securities) must, of course, be answered by the data.

The hypotheses to be tested can be summarized algebraically as

$$\tilde{R}_{Gt} = \tilde{R}_{Tt} + \tilde{\varepsilon}_{Gt}$$

and

$$\tilde{R}_{Gt} = \tilde{R}_{Ct} + \tilde{\varepsilon}'_{Gt}$$

where tildes represent radom variables; R_{Gt}, R_{Tt}, and R_{Ct} are the instantaneous returns on GNMA securities, treasury bonds, and Aaa-rated corporate bonds, respectively, in time period t; and ε_{Gt} and ε'_{Gt} are random disturbances which represent the unexpected return on the GNMA security in time period t. Then taking expectations

$$E(R_{Gt} \mid \phi_{t-1}) = E(R_{Tt} \mid \phi_{t-1}) \qquad (3)$$

and

$$E(R_{Gt} \mid \phi_{t-1}) = E(R_{Ct} \mid \phi_{t-1}) \qquad (4)$$

where $E(\cdot)$ is the expectations operator and ϕ_{t-1} is the set of information available at time t-1.

In the following two sections we test the relationships expressed in (3) and (4). It should be noted that we are testing the joint hypothesis that: (1) contingent upon the set of information relevant to the pricing of these securities, the market properly anticipates the distribution of future cash flows to them; and (2) the market prices these securities according to equations (3) and (4).

IV. Data

To test our hypotheses, we constructed several alternative monthly rate of return indexes for eight percent GNMA securities over the period January 1, 1971 through June 30, 1978. The return on a GNMA security is composed of four elements: (1) the change in the security's price; (2) the coupon interest payment; (3) the scheduled principal repayment; and (4) the unscheduled or stochastic principal repayment.

IV. A. Principal and Interest Payments

When a GNMA security is issued, the issuer records the total dollar amounts of the outstanding balances of the loans in the pool underlying the security. Each month thereafter, the issuer computes the dollar amount of principal repaid on the underlying loans and sums these amounts over time. Each month this sum is subtracted from the original balance and the difference is divided by the original balance. This fraction is called the paydown factor on the pool. Each month the security issuer is required to report the paydown factor to the Government National Mortgage Association.

Given the paydown factors for the beginning and end of any month (or equivalently, the beginning factors for two consecutive months) we can compute the total principal payments on the loans in the pool during the month as

$$P_{it} = (F^b_{it} - F^e_{it})B_{oi} \tag{5}$$

where P_{it} is the dollar amount of principal repaid on GNMA security i during month t; F^b_{it} is the paydown factor for security i at the beginning of month t; F^e_{it} is the paydown factor for security i at the end of month t (Note: $F^b_{i,t} = F^e_{i,t-1}$); and B_{oi} is the total original principal balance of the mortgage loans "backing" GNMA security i.

Given the monthly paydown factors and the annual coupon interest rate on the security, we can also compute the total dollar amount of interest paid on the security during the month as

$$I_{it} = (F^b_{it} \cdot B_{oi}) \frac{C_i}{12} \tag{6}$$

where I_{it} is the total dollar amount of interest paid on security i in month t and C_i is the annual interest rate on the security.[4]

In computing the rates of return in the GNMA securities we used two sources of paydown factors.

The bulk of the paydown factors were made available to us on a computer tape by Loeb, Rhoades & Co. This tape contains monthly paydown factors for over 25,000 individual pools issued over the period February 1970 through June 1978. Of this total approximately 9,400 were eight percent securities. It was this subset of eight percent pools that we used in our computations.

Although the computer tape included paydown information on securities issued as early as February 1970, the actual paydown factors did not begin until February 1972 because Loeb, Rhoades did not record the information prior to that date.

We supplemented the computer tape with data provided to us by National Homes Acceptance Corporation. National Homes provided us with the monthly balances for twelve 8 percent pools issued between December 1, 1970 and January 30, 1971. From these data we computed monthly paydown factors for the period January 1, 1971 to February 28, 1972 for each of the twelve pools.

By combining these two data sets we constructed a continuous series of monthly paydown factors for the period January 1, 1971 to June 30, 1978. It should be noted that conclusions about rates of return on GNMAs over the period January 1971 to February 1972 are dependent upon the assumption that the twelve pools obtained from National Homes Acceptance are representative of all outstanding GNMA securities over that period.

IV. B. Market Prices

The second ingredient needed to compute rates of return are monthly market prices for GNMA securities. In this case, three data sources were used.

For the period August 30, 1974 through June 30, 1978 month-end prices for eight percent GNMAs were collected from the Wall Street Journal [20]. Prior to that time the Journal did not report GNMA prices. However, Salomon Brothers' Yield Book [1] does contain "first-of-month" yields on GNMA eight percent securities beginning with December 1, 1971. These yields were computed based on the "consensus" market price at the beginning of each month and with the assumption of a twelve-year average life for GNMAs. By reversing the procedure used by Salomon Brothers to obtain yields, we were able to estimate market prices over the period December 1, 1971 through July 30, 1974.

For the period January 1, 1971 through November 30, 1971 we estimated market prices from a weekly yield series computed by Merrill, Lynch. This series used Friday prices to compute weekly yields. Again we reversed the process used to obtain yields to estimate market prices. We used the week-end price closest to each month-end as an estimate of the month-end price. As with the paydown factor data, the earlier observations in this series may be less reliable than the more recent ones.

By combining these three price series we constructed a continuous price series over the period January 1, 1971 through June 30, 1978.[5]

IV. C. Monthly Rates of Return

With the paydown factor and price data described above we computed monthly rates of return on each individual eight percent GNMA security for which we had paydown factor information as

$$R_{it} = \frac{(M_t^e \cdot F_{it}^e) + (F_{it}^b \cdot \frac{.08}{12}) + (F_{it}^b - F_{it}^e) - (M_t^b \cdot F_{it}^b)}{M_t^b \cdot F_{it}^b} \qquad (7)$$

where R_{it} is the rate of return on GNMA security i in month t; M_t^b is the market price of eight percent GNMA securities at the beginning of month t expressed as a fraction of the dollar amount of the principal balances of the loans in the pool (for example, a price of .955 means that the buyer of a security would be required to pay $95.50 for each one hundred dollars of unpaid principal); M_t^e is the market price of eight percent GNMAs at the end of month t (Note: $M_t^b = M_{t-1}^e$); and other terms are as defined above. In equation (7), the first and last terms on the right-hand-side combined, represent the change in the market price of the security: the second term represents the interest payment; and the third term represents the total principal payment (i.e., both the scheduled and unscheduled principal payment) during month t.

A rate of return was computed for each month for each of the approximately 9,4000 eight percent securities if a paydown factor was available for the beginning and end of the relevant month. If an individual monthly factor for a specific pool was missing from the tape, then no rate of return was computed for that specific month for that specific pool.

The rate of return series for the individual securities were combined to construct four different rate of return indexes for eight percent GNMA securities over the period January 1, 1971 through June 30, 1978: (1) an equally-weighted index using all monthly returns for all securities; (2) a value-weighted index using all monthly returns for all securities; (3) a "new issues" equally-weighted index using only returns computed for the individual securities for the first fourteen months they were outstanding; and (4) a "new issues" value-weighted index using only returns computed for the individual securities for the first fourteen months after the date of issue.

Equally-weighted and value-weighted indexes were constructed because each embodies a different assumption about representative security performance. The "new issue" indexes were computed because the bulk of the total dollar volume of transactions in GNMA securities is composed of relatively new GNMA securities. As a consequence, the observed market prices may be more representative of the value of "new" issues than of the entire GNMA market. If the "true" market values of "old" and "new" securities differ, then using current market prices in conjunction with paydown factors on "old" pools may give a distorted picture of the rate of return experience of GNMA securities.[6]

Monthly rates of return on long-term governmnet bonds and Aaa-rated corporate bonds were made available to us by Roger Ibbotson. The procedure used to construct these monthly return series is described in [13] and [14].[7]

V. Results

V.A. Preliminary Analysis

Table 1 contains the arithmetic mean, standard deviation, and studentized range for the monthly returns, along with the maximum and mimimum monthly return, for each of the four GNMA indexes, the government bond index, and the corporate bond index over the period January 1971 through June 1978 (months 1-90) and the period July 1973 through June 1978 (months 31-90). The 60 month subperiod was considered separately because, as we discussed above, the data for the earlier months may be less reliable than those for the latter months. Table 2 contains correlation coefficients among the six returns series.

As the two tables indicate, the four GNMA series are virtually indistinguishable. The largest difference in mean returns across the four indexes is .0001, while the largest difference in standard deviations is .00003. Furthermore, each of the correlation coefficients among the GNMA indexes is in excess of .99. These results indicate that conclusions obtained with any one of the GNMA indexes will be equivalent to those obtained with any other. In subsequent analysis, we present results for the equally-weighted index only.[8]

Comparison of the results for the GNMAs with those for government and corporate bonds, indicates that, over both the full 90 month interval and the 60 month subperiod, the mean monthly return on the GNMAs did, in fact, exceed the mean return of the two comparison securities. Likewise for the full 90-month period the standard deviation of GNMA returns exceeded that of both government and corporate bonds. Over the last 60 months the standard deviation of monthly returns on GNMAs slightly exceeded the standard deviation of monthly returns on government bonds but it was less than the standard deviation of corporate bond returns.

Examination of Table 2 indicates that the correlation coefficients among all the series were significant at the .05 level and that the GNMA returns were slightly more highly correlated with those of corporate bonds than with those of government bonds.

Finally, based on the studentized ranges for the various returns series, it is not possible to reject the hypothesis that the monthly returns on each are distributed normally. This result permits us to conduct additional statistical tests which are based on the assumption that the returns of the various securities are normally distributed.

TABLE 1

SUMMARY STATISTICS FOR MONTHLY RATES OF RETURN ON GNMA SECUTIRIES, GOVERNMENT BONDS, AND Aaa-RATED CORPORATE BONDS

	Months[a]	Arithmetic Mean	Standard Deviation	Maximum	Minimum	Studentized Range
1-A.	GNMA Equally-weighted Index (all data)					
	1-90	.00558	.01836	.0634	-.0336	5.446
	31-90	.00538	.02097	.0634	-.0336	4.769
1-B.	GNMA Value-weighted index (all data)					
	1-90	.00557	.01837	.0634	-.0372	5.476
	31-90	.00538	.02097	.0634	-.0372	4.797
1-C.	GNMA New-Issues Equally-weighted Index (14 months only)					
	1-90	.00552	.01839	.0633	-.0373	5.470
	31-90	.00528	.02100	.0633	-.0373	4.790
1-D.	GNMA New-Issues Value-weighted Index (14 months only)					
	1-90	.00552	.01839	.0633	-.0341	5.470
	31-90	.00528	.02100	.0633	-.0341	4.790
1-E.	Long-Term Government Bonds					
	1-90	.00494	.02047	.0526	-.0468	4.856
	31-90	.00482	.02024	.0489	-.0433	4.555
1-F.	Long-Term Aaa Corporate Bonds					
	1-90	.00546	.02221	.0596	-.0476	4.827
	31-90	.00523	.02370	.0596	-.0476	4.523

[a]Months	Time period
1-90	1/1971-6/1978
31-90	7/1973-6/1978

TABLE 2

CORRELATIONS AMONG MONTHLY RATE OF RETURN INDEXES: MONTHS 1-90

SECURITY	CORRELATIONS[a]					
	SECURITY					
	EW	VW	NEW	NVW	LTG	LTC
EW	1.00					
VW	.99	1.00				
NEW	.99	.99	1.00			
NVW	.99	.99	.99	1.00		
LTG	.75	.75	.75	.75	1.00	
LTC	.83	.83	.83	.83	.85	1.00

Definitions:

EW = Equally-weighted GNMA Index (all data)
VW = Value-weighted GNMA Index (all data)
NEW = New-issues Equally-weighted GNMA Index
NVW = New-issues Value-weighted GNMA Index
LTG = Long-term Government Bonds
LTC = Long-term Corporate Bonds

[a] All coefficients are significant at the .05 level.

V.B. Tests of Significance

Table 3 contains the results of two statistical tests of equations (3) and (4).

The first is the standard t-test of the difference between two sample means. With either a two-tailed test or one-tailed test, it is not possible to reject the hypothesis that the mean return on GNMA securities was equal to the mean return on government bonds over the two time intervals considered at the .10 level of significance. Examination of the t-values for the corporate bond comparisons yields similar conclusions. For neither the full 90 month interval nor for the 60 month subperiod is it possible to reject the hypothesis that the mean return on GNMAs was equal to the mean return on Aaa-rated corporate bonds at .10 level. This is ture regardless of whether a two-tailed or one-tailed test is considered.[9]

The results of the second test are presented in Column 5. Depending upon the time interval considered, we determined the number of months out of 90 or 60 that the GNMA return exceeded the government (corporate) bond return. For government bonds, these numbers were 50/90 and 34/60; for corporates they were 45/90 and 28/60, respectively, for the two time periods. Then based upon a binomial distribution with a mean of .5, we computed a z-statistic to determine if these numbers were significantly different from 45 or from 30.

At the .10 level of significance, with either a two-tailed or one-tailed test, we cannot reject the hypothesis that, for any month, the probability of the GNMA return exceeding the government (corporate) bond return

TABLE 3

COMPARISON OF RETURNS ON GNMA SECURITIES WITH RETURNS ON GOVERNMENT BONDS AND Aaa CORPORATE BONDS

Months	Difference in Mean Monthly Returns (t-statistic)[b]	Maximum Net Monthly Return	Minimum Net Monthly Return	Number of Positive Net Returns (Z-statistic)[c]
3-A Monthly Returns on GNMAs less Returns on Government Bonds[a]				
1-90	.00064 (.438)	.0345	-.0497	50 (1.054)
31-90	.00056 (.306)	.027	-.0497	34 (1.0328)
3-B Monthly Returns on GNMAs less Returns on Corporate Bonds				
1-90	.00012 (.321)	.0444	-.0465	45 (.000)
31-90	.00015 (.088)	.0174	-.0465	28 (-.516)

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[a] Computed with GNMA Equally-weighted Index (all data)

[b] Computed as $t = \dfrac{\overline{R}_g - \overline{R}_k}{\sqrt{\left(S_g^2 + S_k^2 - 2r_{gk}S_gS_k\right)/n}}$

where

$\overline{R}_g(\overline{R}_k)$ = arithmetic mean monthly return on GNMA (comparison) security,
$S_g(S_k)$ = standard deviation of monthly return on GNMA (comparison) security,
r_{gk} = correlation coefficient between monthly return on GNMAs and the comparison security.
$n = 90$

[c] Computed as $Z = \dfrac{d-np}{S_d}$

where

$p = .50$
$n = 90$
d = number of positive net returns
S_d = standard deviation of binomial distribution with $p = .50$ and $n = 90$.

was equal to the probability of the government (corporate) bond return exceeding the GNMA return. Equivalently stated, we cannot reject the hypothesis that, for any given month, the probability that the return on a GNMA security will be greater (less) than the return on a long-term government or Aaa corporate bond is .5.

Thus, at traditional levels of confidence, we cannot reject the joint hypothesis that the market properly assessed the distribution of cash flows to GNMA securities and that it priced them according to equations (3) and (4). As a consequence, we cannot conclude that the market improperly priced GNMA securities over the interval January 1971 through June 1978. Nor can we conclude that the cost of acquiring funds to finance single-family housing through the GNMA program exceeded the cost of acquiring funds by the U.S. government or financially-strong corporations.

VI. Conclusion

In this paper we test the joint hypothesis that: (1) contingent upon the set of relevant information, the market properly anticipated the distribution of returns to GNMA securities over the period January 1971 through June 1978 and; (2) that it priced them to earn the same expected returns as long-term treasury bonds and/or Aaa-rated corporate bonds. At traditional levels of significance it is not possible to conclude that the returns on GNMAs were different from the returns on either of the two comparison securities. As a consequence, we cannot conclude that the cost of acquiring funds to finance single-family housing through the GNMA program exceeded the cost of acquiring funds by the U.S. government or by financially-strong corporations.

It is true, however, that the mean return on GNMAs over the period examined not only exceeded the mean return on long-term government bonds, but it also was slightly greater than the mean return on high-grade corporate bonds. The t-statistics indicate that there is a high probability that this result is due entirely to chance. Another possible explanation is that the relative pricing model posited does not adequately describe the relationship among the returns on GNMAs and other securities. For example, it is possible that the stochastic prepayments on GNMAs are correlated with some other (unknown) economic factor not incorporated in the model. Addressing that possibility requires the development of a more complete model for the pricing of GNMA securities. Further refinements in the general model for the pricing of interest contingent claims developed by Cox, Ingersoll and Ross [8] may provide the basis for such a model. In the meantime, it is not possible to conclude that the purchasers of single-family housing participate at a disadvantage in the capital markets relative to the U.S. government or financially-strong corporations. It is our hope that these results will be useful to those individuals responsible for designing and managing federally-sponsored mortgage loan programs.

FOOTNOTES

[1] Extensive discussions of the institutional characteristics of the GNMA security are available in [17] and [19].

[2] Brealey [3] makes this same point in his discussion of Curley and Guttentag [6].

[3] A more precise statement of this assumption is that the state of the world is completely specified by the level of the current rate of interest for instantaneous risk-free borrowing and lending and, therefore, all relevant uncertainty is completely summarized by the stochastic behavior of the spot interest rate.

[4] The coupon interest rate on the underlying mortgage loans is one-half percent greater than the coupon rate on the GNMA security. The one-half percent difference represents the "administration" fee received by the loan "servicer" and the insurance premium received by the Government National Mortgage Association. McConnell [15], [16] demonstrates that the cost of a mortgage loan can be divided into the cost of originating and servicing the loan and the cost of acquiring funds in the capital market. Here we are concerned only with the cost of acquiring funds.

[5] After a lengthy search of possible sources we were unable to discover market prices or yield data prior to December 1970.

[6] A more complete description of the way in which each index was constructed is available from the authors.

[7] The returns series reported in [13] end in 1974. Roger Ibbotsen provided us with updated data through December 1978. We acknowledge his assistance with gratitude.

[8] We did carry out the tests with all four GNMA indexes. Because the results were virtually indistinguishable regardless of the index used, we report only those for the equally-weighted index constructed with all data.

[9] These results are qualitatively similar to those reported by Bildersee [2] in his comprehensive study of U.S. agency bonds (which did not include GNMA securities). Using data over the period 1965 through 1973, he reported that, although ex ante yields on long-term agency bonds significantly exceeded yields on long-term treasury bonds, their mean monthly returns were indistinguishable. In fact, in several instances mean holding period returns on treasury bonds were actually greater that those on the agency bonds.

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**Credit
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WORKING PAPER NO. 33

Second Mortgage Survey, 1979

Krannert Graduate School of Management – Purdue University

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SECOND MORTGAGE SURVEY, 1979

Richard L. Peterson and Debra A. Drecnik*

Abstract

Second mortgage lending has grown rapidly in recent years as inflation has increased homeowner equity rapidly at the same time that creditors' protections have been eroded on many other types of consumer loans. The burgeoning growth in the second mortgage market has also kindled substantial interest in it. Thus, the National Second Mortgage Association (NSMA) commenced annual surveys of its members to learn more about the operations of the second mortgage market.

Only limited data were obtained in the 1978 survey. Thus, the NSMA collaborated with the Credit Research Center in 1979 to design a questionnaire and conduct a survey that would provide more comprehensive data on the second mortgage lending.

This study reports on major findings of that survey. Major findings were:

(1) Second mortgage lenders are experiencing extremely rapid growth in their credit outstanding. At year-end 1978, 45 NSMA members alone held $4 billion in second mortgages outstanding.

(2) Secondary market transactions are not uncommon in second mortgage lending but the majority of second mortgages are held by the originators.

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(3) New second mortgages offered by most lenders had average maturities of six years, average homeowners equity of slightly over 20 percent, and average sizes ranging from slightly over $1,000 to over $27,000, depending on the institution.

(4) Losses on second mortgage loan portfolios were quite low, but delinquency rates were not.

(5) Second mortgage lenders were highly leveraged institutions that generally found their second mortgage lending to be quite profitable. They were profitable in spite of the fact that gross interest earnings averaged below 14.8 percent of average receivables.

(6) The overwhelming majority of second mortgage loans made by survey respondents were made to households, not businesses. Finally,

(7) The financial situation of second mortgage lenders varied substantially with the size of the lenders' second mortgage portfolio. For instance, the smallest lenders were the least leveraged and paid the highest rates to borrow, while the largest lenders made the smallest loans and paid the most to borrow.

The survey presents both aggregate results and results for each size group of lender for all items surveyed. Within each size group, data are presented to show the highest, lowest, median, and average values for each item of information.

SECOND MORTGAGE SURVEY, 1979

Richard L. Peterson and Debra A. Drecnik

I. Background

Because inflation has caused the market value of household equity to increase rapidly in recent years, many consumers are in a position to use the equity in their homes as collateral for loans. At the same time, rising costs of funds and operations, coupled with rate ceilings and restrictions on creditors' remedies have caused lenders to seek ways to make relatively large consumer loans at moderate rates, without taking excessive risk.

By pledging household equity under a second mortgage, consumers have found that they can borrow sufficient funds to meet their cash needs during inflationary times. Also, second mortgage loans provide one way for lenders to extend relatively large loans with low risks of default. Thus, second mortgage lending has grown rapidly in popularity with both borrowers and lenders in recent years.

In spite of its growth, there is a paucity of statistics on the nature and operations of the second mortgage market. Very little has been known about the characteristics of second mortgage instruments (their terms, sizes, and equity requirements), their delinquency and loss performance, and the nature and size of primary and secondary markets for second mortgages.

The National Second Mortgage Association (NSMA) has attempted to fill gaps in this information by asking all of its members to complete a survey describing their operations in the second mortgage markets for the business year 1978. A similar survey was conducted in 1978 for the business year 1977; however, only a limited number of useful responses to a narrow spectrum of questions were obtained in that 1977 survey. Consequently, the NSMA entered into a cooperative arrangement with the Credit Research Center (CRC) of Purdue University to undertake a survey of its members during the last half of 1979.

CRC worked with the NSMA to develop a questionnaire in the spring of 1979. At mid-year, 107 questionnaires were mailed out. Two were undeliverable. Forty-five were completed. The number completed was nearly twice as great as in 1978. This fact, plus the fact that more detailed questions were asked in 1979, allowed more useful data and inferences to be drawn from the survey than was previously possible.

According to the NSMA, their analysis of a list of respondent's code numbers indicated that, at most, only two of their largest members had failed to respond to the survey by September. Later, two more responses from large second mortgage holders were received. Consequently, the data compiled in this survey apply to a substantial portion of the rapidly growing second mortgage markets. At year-end 1978, survey respondents held approximately $4 billion in second mortgages.

This summary of the survey results is divided into seven sections. Section II briefly describes the survey methodology. Section III discusses the volume of second mortgage loan originations, purchases, sales, and outstandings--both in total, and for survey members of different sizes.

In addition, it draws inferences about the growth of second mortgage lending and the average size of second mortgage loans made, purchased, or sold by different sizes of second mortgage lenders.

Section IV focuses on key operating statistics provided by survey respondents. In particular, it looks at leverage and debt/equity ratios for second mortgage lenders, interest expenses on their borrowings, and gross returns on equity. Data provided by respondents in Section IV were not uniform. In particular, measures of amounts and costs of borrowings undoubtedly differed substantially for commercial banks, mortgage banking companies, and other second mortgage lenders. Yet, there was no way to determine which respondents were banks or mortgage banks. As a result, many data could not be used in the analysis, because they did not appear to apply solely to second mortgage lending.

Section V discusses the characteristics of second mortgage loans made to households and businesses, and the nature of institutions making each type of loan. Unfortunately, only a limited number of respondents were able to provide some of these data.

Section VI analyzes the divergent delinquency and loss statistics reported by the respondent firms. Finally, Section VII summarizes the data presented in the survey and explains how they vary for different sizes of institutions in the second mortgage markets. Size-related differences in delinquencies, risk aversion, costs of funds, loan terms, loan sizes, business mortgage origination, secondary market participation, and leverage ratios are noted.

An Appendix presents the survey form used to obtain data for the survey. Suggestions for future improvement in the questionnaire are noted in the Appendix.

II. Survey Methodology

The NSMA mailed the questionnaire shown in the Appendix to all of its members in the middle of 1979. Each survey was accompanied by a letter with the return address of CRC. Each survey was identified only with an identification number, so the responses could be kept confidential.

The first responses to the survey were received at CRC in July. In August, the NSMA checked a list of respondent numbers against the list of members to whom it had sent questionnaires. They then called two large members who had not yet returned their questionnaires. Subsequently, additional survey responses were received, including two from large institutions. Thus, it is likely that all of the largest members of the NSMA responded to the request for information.

Coverage of the smaller members of the NSMA was not as complete. Many of the smaller firms were not able to provide detailed responses to a number of the questions. Also, several firms were able to respond only to certain parts of the questionnaire--for instance they only purchased or sold second mortgage paper. Finally, at least one NSMA member reported that it did not return the questionnaire as it held no second mortgage loans. Thus, the overall response rate to the questionnaire was slightly under 50 percent.

In total, 45 responses were received to the questionnaire. Of those, 41 were classed into groups according to the amount of their second mortgage outstandings. The four nonclassifiable responses included three institutions that primarily originated and sold second mortgage loans. Two of those three held no second mortgage balances outstanding at all, while the third held only a very nominal amount. The fourth unclassified response was from an institution that specialized in buying second mortgages. Since the servicing of their second mortgages was conducted by other institutions, it was able to provide only a few responses to the questionnaire.

Data were aggregated by the size of the institutions, in conformance with the procedure used in NSMA's 1978 survey. However, the size groupings were not the same. Because of the greater number of responses and the fact that a number of institutions held similar amounts of second mortgages, the survey data were divided into five groups according to the amount of second mortgage loans outstanding. Those categories and (in parentheses) the number of respondents in each were: $0-5 million (8), $5-15 million (9), $20-45 million (9), $50-125 million (6), and $199 million and over (9).

For each group, the following data were reported for each item: the average value for that size group, the high value for that group, the low value for that size group, and the median value for that size group. These data allow respondent institutions to compare their characteristics with the high, low, or median characteristics of other institutions with similar size holdings of second mortgages. However, each characteristic was treated independently. Hence, high, low or median value responses for different items do not necessarily apply to the same institution.

In addition to high, low, and mean values for each characteristic, average values are reported for that characteristic for each size group. For comparison purposes, overall averages (based on data from all respondents) are presented for each characteristic surveyed.

The total number of respondents that provided usable data for each item is summarized on the table providing data for the largest size group. In addition, the number of respondents whose data are included in group averages is reported with each average. Response rates to particular questions frequently are low because some respondents did not answer the questions. Also, some responses were not usable.

A number of adjustments had to be made in the data to make sure that responses given by various institutions were mutually consistent. In two cases the total number of second mortgage loans reported for the last quarter did not equal the sum of the household loans and non-household loans. In these cases the total was adjusted to make it equal to the sum of its parts.

Eight of the respondents reported figures for their average net receivables which were very low relative to their total year-end receivables. They may have reported year-end receivables divided by 12 for their average receivables. Rather than assume that this calculation had been made, we decided not to use their data in calculating the ratio of average borrowings to average net receivables.

Respondents often included unearned finance charges in reporting outstanding delinquent loans. It became apparent that unearned finance charges were included in outstandings because the amounts reported as current or delinquent exceeded the total amount of receivables outstanding. In these (17) cases, we calculated the ratio of reported total receivables to total (delinquent plus current) loan balances outstanding and used it to deflate each of the delinquent categories. Delinquency percentages should be little affected, because the same ratio was applied to total loan balances as to delinquent loan balances in each delinquency category. In general, it was our intent to calculate delinquent principal balances as a percentage of outstanding principal balances, excluding any unearned finance charges.

Finally, a number of institutions that engaged in several lines of business were unable to identify the revenues, interest costs, and profits that were applicable only to their second mortgage loans. However, many of them did estimate the relative importance of their second mortgage loans in their total loan portfolios, and provided data on their total operations. In those cases we prorated interest costs and total borrowings by the proportions of second mortgage loans in their portfolios before using the data.

Overall, the respondents did a conscientious job of filling out the questionnaires. The major problem was that some of them did not keep data in the manner that was requested by the questionnaire. The adjustments described above should facilitate accurate comparison among institutions. In subsequent years, modifications of the questionnaire should further enhance comparability.

III. Loan Volume

Table 1 presents data on the amounts of second mortgage loans outstanding that were owned or serviced by each institution and the amounts of second mortgage loans that were originated, purchased, or sold by institutions in 1978. It also provides data on average net loans receivable and on the ratio of quarterly loan originations to total balances outstanding.

Table 1 also provides data on numbers of second mortgage loans. Information on the number of loans was divided into total dollar volumes to calculate average sizes of second mortgage loans outstanding, serviced, originated, purchased, or sold by all respondents. The average size of second mortgage loans made by all respondents to the survey was calculated both on a per loan and on a per institution basis within each size category. Because the average size of loan per institution might be very high or low for some small institutions, giving equal weight to the average value of second mortgages held by each institution could suggest that the average size of second mortgage loans was (on average) larger or smaller than it actually was.

Outstanding Loans

The data summarized in Table 1 indicate that reporting NSMA members held an average of nearly $100 million in second mortgage loans outstanding at year-end 1978. On average, each institution held a portfolio of second mortgages that had an average outstanding balance of $7,500. However, the largest institutions held considerably smaller mortgages than the others. As a result, the average size of second mortgage loans held was slightly over $3,000.

Loan Servicing

Four institutions included in the tables serviced second mortgage loans for others. One of those institutions held a relatively small amount of second mortgage loans for its own account but serviced nearly $20 million worth of second mortgage loans. The other three institutions held substantial amounts of second mortgages for their own account and serviced additional mortgage loan portfolios with an average value of $16 million. In addition, three institutions only serviced second mortgages. They held zero or negligible amounts of second mortgage loans for their own account. Because they reported very little data, they were not included in the tables. Those institutions each serviced, on average, $6-1/4 million in second mortgage loans. Thus, respondent institutions, in total, serviced less than $100 million in second mortgages. This is very small relative to the nearly $4 billion in second mortgages that all NSMA respondents held in their loan portfolios.

The average size of a loan serviced, at $8800 per institution, was larger than the average size loan ($7700) held by institutions' in their own portfolios.

Loans Originated

The total amount of loans originated during the past year averaged $66 million per institution, a very substantial figure relative to the $92 million in loans outstanding at the end of the fiscal year. This suggests that NSMA members are rapidly expanding their holdings of second mortgage loans. Further, the average size of new second mortgage loans is larger than the average size of existing second mortgage loans. Newly originated second mortgage loans averaged $10,000 at the typical respondent institution. However, the largest respondents originated considerably smaller ($3,000) loans.

Loan Purchases

Second mortgage loans were not purchased by a large number of institutions. Most institutions that purchased second mortgage loans held $5 to $45 million in second mortgage outstandings. They had purchased, on average, slightly under $5 million of second mortgage loans during the year. Three of the largest institutions also purchased second mortgage loans, but their net purchases were even smaller, on balance, than those of the smaller NSMA members.

Loan Sales

Only seven of the respondent institutions (whose data are summarized in the table, plus the three whose data are not) reported selling second mortgage loans. Institutions of nearly all size categories sold second mortgage loans. However, it appears that second mortgage loan sales activity is not yet extensive. Only ten out of 45 institutions reported selling second mortgage loans and only 13 reported buying second mortgage loans. This indicates that there are active secondary markets for second mortgage loans but most of these institutions do not participate in them.

Loan Volume

Growth in second mortgage loans outstanding has been very rapid. The last quarters' volume equalled 30 percent of the amount outstanding at the reporting institutions. This rapid growth is primarily due to the fact that the institutions that hold the largest amount of second mortgage loans have grown very rapidly. The ratio of the last quarter's loan volume to loan outstandings averaged 34 percent for institutions with the largest ($199 million plus) second mortgage loan holdings. In contrast, most of the other institutions had quarterly volume to out-

outstandings ratios closer to 20 percent--which is still substantial but far below the ratios applicable to the largest institutions.

Some of this volume may be due to refinancings of existing loans--particularly refinancings that occurred in the last quarter of the year. Thus, until data become available on refinancings, it will not be possible to determine what portion of this volume represents true growth and what portion merely represents refinancing of existing balances.

IV. Key Operating Statistics

From statistics reported by approximately half of the NSMA respondents on second mortgage outstandings, average amount borrowed, interest expenses, interest income and average equity, it is possible to draw a number of interesting conclusions. (Table 2).

The major conclusion that can be drawn from Table 2 is that second mortgage lending is a highly leveraged business. The average borrowings of second mortgage lenders, relative to their second mortgage loans outstanding at year end, were close to 90 percent. This was true for every size category of lender analyzed. Relatedly, the average borrowings of survey respondents were almost four times average equity. While the average ratio of borrowings to receivables ranged only from 86.9 to 91.9 percent for various size categories of institutions, the ratio of borrowings to equity varied widely. The smallest size category of second mortgage holders had almost as much equity as debt, while the intermediate size categories held five times as much debt as equity.

The average borrowing ratio may have been lower for the smallest second mortgage market participants because they paid the highest ratio of interest to average borrowings (9.72%). In contrast, the holders of the largest amounts of second mortgages paid interest that was, on average, less than or equal to eight percent of their total average borrowings.

Overall, the average interest expense ratio was approximately eight percent, but this may have been understated. Some of the very largest respondents appeared to be commercial banks who stated their interest expense but did not include the costs of servicing deposits as a cost of obtaining funds. Because they paid relatively low rates on deposits, their inclusion in calculations of average interest expenses lowered the ratio of average interest expense to total borrowings.

The ratio of gross interest income to average equity generally was higher for institutions that were more highly leveraged. Of course, the more highly leveraged institutions had to pay more interest on their borrowings, in addition to mortgage service costs, before they received a net return on their average equity. As a result, ratios of net earnings to average receivables did not vary widely among size categories--except for one category where one institution reported losses equal to one-quarter of its second mortgage receivables. Overall, net earnings equalled 3.6 percent of average receivables outstanding. However, only 18 institutions reported sufficient data for this statistic to be calculated. While the ratio of net earnings to average receivables did not vary widely (except as noted above) the ratio of pretax income to gross income varied widely for different institutions--even though the institution with large losses was excluded from the calculation.

V. Loan Composition and Terms

Respondents to the survey were asked to segregate their second mortgage lending activities by household versus other purposes during the last quarter of their fiscal year. The household share of second mortgage lending predominated (Table 3). Of 28 institutions that were able to report this information in a usable form, only eight made loans for other than household purposes. Those eight still made over 90 percent of their loans and 75 percent of their dollar volume of second mortgage loans to households. Thus, overall, loans made for household purposes, as reported by the 28 respondents, accounted for 99 percent of the number (and 97 percent of the dollar volume) of their second mortgage lending.

Non-household loans, on average, were substantially larger than loans made to households. They averaged over $15,000 each in contrast to an average size household loan of about $4,200.

Respondents were also asked to describe the typical terms on their new second mortgage loans: the average maturity and the maximum ratio of loan to appraised equity. For all respondents combined, the average maturity of second mortgage loans offered was slightly in excess of six years. The average maturity was longest for the $50 to $125 million category of respondents. It averaged over eight years. It was the shortest for the $20 to $45 million category, with an average maturity of four and one-half years.

Institutions' maximum ratio of loans to appraised equity averaged slightly under eighty percent. It was over 80 percent only for the largest two categories of respondents and was only about 70 percent for the smallest category of respondents.

Based on the leniency of loan maturities and loan-to-equity ratios that were granted by institutions in the $50 to $125 million size category, one would expect that they were willing to take slightly more risk than other institutions. In the next section we analyze comparative delinquency and charge-off statistics for different size classes of institutions.

VI. Delinquency and Loss Statistics

Information obtained in the survey revealed a wide variety in the way firms calculate their delinquency statistics. Some institutions make no provision for "curing" delinquencies. If an individual misses a payment, that loan is subsequently considered delinquent until it is fully repaid. In contrast, other institutions consider a loan current so long as the borrower is making current payments regularly--even if total payments since its origination are one or two payments in arrears. In addition, some institutions report their delinquencies as principal balances delinquent, while other institutions report their delinquencies as the sum of principal balances plus unearned finance charges outstanding on delinquent loans. As previously noted, wherever we observed that the latter type of reporting had been used, we converted the delinquency statistics to a principal balance basis. Finally, it should be noted that delinquent loans tended to be smaller than other loans. Consequently, delinquent percentages based on the number of loans delinquent were much higher than delinquency statistics reported as a percentage of outstanding principal balances delinquent.

Uniform data were most readily available for delinquent balances at least 60 days past due. The data, reported in Table 4, indicate that less than two percent of all outstanding second mortgage loan balances were delinquent more than 60 days, and only 1-1/4 percent of outstanding second mortgage loan balances were delinquent more than 90 days.

Delinquency statistics varied substantially with the size of institution. The largest institutions had relatively high delinquencies. Their 60 day delinquencies exceeded four and one-half percent and their 90 day delinquencies equalled 3-1/4 percent. At the other extreme, the $50 to $125 million classification of respondents had the lowest delinquency statistics. This is surprising since members of that group reported that they made loans with the longest maturities and highest loan to appraised equity ratios. Less than one-half of one percent of their loans were delinquent for more than 60 days, and only about one quarter of one percent of their loans were delinquent over 90 days.

Charge-off experience tended to parallel delinquency experience. For all respondents, the ratio of charge-offs to average outstanding balances was .76 percent. This percentage was highest for the smallest and largest size categories of respondents, at eight- or nine-tenths of one percent. Charge-offs were smallest for holders of $5 to $15 million in outstanding receivables, at 0.12 percent.

Overall, recoveries on charged-off loans averaged 0.3 percent. Recoveries tended to be highest for those categories of second mortgage lenders that had the highest charge-off rates. The largest size category of respondents had a recovery rate of 0.37 percent, which left it with a net loss rate of slightly below 1/2 of one percent. The smallest size category of respondents had a recovery rate of 0.4 percent, which left it with a net charge-off rate of 0.4 percent. The $5 to $15 million size category of respondents had practically no recoveries, but also had miniscule charge-offs. Thus, their net loss rate was only slightly more than 0.1 percent.

Reserves for losses varied widely among institutions. The size categories with the lowest loss experiences tended to keep the smallest reserves for losses. Thus, the $50 to $125 million category kept loss reserves equal to 0.8 percent of outstandings. The largest category of respondents, which had the highest loss rate, maintained the largest reserve for losses--at 3.24 percent. This raised the full sample's average reserve for losses substantially (to 2.58 percent) due to the great influence of the large size category on the aggregate statistics.

The only exception to the rule that loss reserves paralleled recent loss experiences existed in the $0 to $5 million size category.

Overall, net loss experiences on second mortgage loans were relatively low--with net losses ranging from 0.1 to 0.5 percent of average receivables outstanding in the preceding year. Rapid growth in the amount of receivables outstanding, coupled with the fact that payment problems may not show up immediately after a loan is made, suggest that the loss ratio may rise somewhat in the future. Losses could also rise if home prices and equity values do not continue to rise as rapidly as they have in the past. Nonetheless, NSMA survey respondents had very favorable loss experience on their second mortgage loans. Their loss rate was no higher than the average loss rate experienced by commercial banks on their consumer instalment lending. It also was substantially below loss rates reported by finance companies on their consumer instalment lending.

VI. Variations Among Size Groups---Summary

Throughout this discussion it has been noted that there is substantial variation in the operations of different size classes of institutions. The largest size class showed the largest growth rate in second mortgage holdings. That group also tended to originate and hold relatively small average size second mortgage loans. They also made loans of relatively short maturity. Possibly because they had aggressively expanded into the second mortgage markets in recent years, as a group their loss experience was one of the highest. Their delinquency rates were also relatively high, which indicated their possible losses might be substantial in the future. However, they had prepared for possible losses by setting aside substantial loss reserves. This group did not participate actively in the secondary mortgage markets. Finally, it had the lowest cost of funds of any group.

The $50 to $125 million size category of second mortgage holders extended loans on the most lenient terms. both as far as downpayments and maturities were concerned. However, they did not experience substantial losses in spite of their leniency. In fact, their net losses were among the lowest of all categories of institutions surveyed.

The leverage ratio for institutions holding $50 to $125 million in mortgages was among the highest of all the institutions surveyed, but their interest expense was not excessively high. Their gross earnings indicated that they could well afford to pay the interest due on their borrowings and still retain a substantial net profit on their second mortgage loan operations.

This size group also appeared to include the most aggressive lenders in the non-household area--albeit for them, as for all institutions--their non-household loan second mortgage lending accounted for a relatively small fraction of their second mortgage loan portfolio.

The $20 to $45 million size category of respondents made loans with about the same maturities, delinquencies, and losses as other respondents. However, their loans were of shorter than average maturities. Also, they participated more extensively than other size classes of institutions in buying and selling second mortgage loans in the secondary mortgage market. Two-thirds of the institutions in the $20 to $45 million category had purchased loans in the secondary mortgage markets in the last year.

Institutions in the $20 to $45 million category were highly leveraged. They paid relatively high rates on their borrowed funds, yet they still reported the highest net rate of return on their second mortgage loan operations. The ratio of their gross interest income to average receivables (at 15.4 percent) was among the highest of any size category. This fact undoubtedly had favorable effect on their net earnings ratio.

The $5 to $15 million size category of institutions was substantially below average both in the rate at which it charged-off consumer loans and in total delinquency rates. This was so in spite of the fact that the average respondent in this group granted relatively long average maturities on new consumer loans.

The $5 to $15 million in receivables group paid slightly higher than average interest relative to their receivables, and were substantially less leveraged than average (as measured by the ratio of their borrowings to their average equity). Because of high losses at one institution, their average net profits were the lowest of any group.

Members in the smallest size category of respondents were among the least leveraged of all the respondents. They also had the highest interest expense ratio on their borrowings. Their high interest expense could explain why they were more reluctant to take on debt to finance second mortgage acquisitions than other institutions in the survey.

The smallest holders had average net rates of return on second mortgages, even though the ratio of their gross interest income to their receivables was the highest of any group. Their delinquencies were somewhat above average, and their loss rate was about average. These institutions participated very little in the secondary mortgage markets, although two out of the eight institutions in this size category were net sellers of second mortgages. Not surprisingly, this size category also had the lowest rate of growth of all the size categories analyzed.

Overall, the statistics provided by the NSMA survey respondents indicate that considerable diversity exists in the type of operations engaged in by NSMA members. Significant variations exist among members with respect to their participation in secondary mortgage markets, credit terms, delinquency and loss experience, leverage ratios, and cost of borrowing. However, the uniformly high ratio of originations to year-end receivables suggests that all size categories of second mortgage holders experienced rapid growth in the survey year.

Table 1. Second Mortgage Loan Flows and Outstandings

Category: Respondents with $199 Million or Over in Outstandings Total - 9 Responses*							Full Sample
			High	Low	Median**	Average	Overall Average +
Year-end Net Outstandings	(8)		$579,789,900	199,130,000	359,836,500	361,747,113	92,301,530 (40)
Owned	(9)	#	361,511	27,058	58,293	116,396	30,320 (40)
Avg./Institution	(8)	$	9,677	894	8,000	6,121	7,496 (39)
Overall Avg./Loan	(8)	$				2,872	3,135 (39)
Serviced Only		$					16,180,550 (4)
	(0)	#					2,104 (4)
Avg./Institution		$					8,838 (4)
Overall Avg./Loan		$					7,689 (4)
Amt. Originated	(7)		$440,532,000	180,231,000	296,530,000	292,431,286	66,616,912 (39)
	(8)	#	344,645	16,342	34,676	90,104	21,245 (39)
Avg./Institution	(7)	$	11,165	1,278	8,841	6,680	9,697 (38)
Overall Avg./Loan	(7)	$				2,937	3,225 (38)
Amt. Purchased	(3)	$	7,284,000	32,000	760,000	2,692,000	4,105,767 (12)
	(3)	#	4,878	79	955	1,971	1,372 (11)
Avg./Institution	(3)	$	1,493	405	796	898	6,723 (11)
Overall Avg./Loan	(3)	$				1,366	2,690 (11)
Amt. Sold	(2)	$	12,230,000	1,546,000		6,888,000	11,621,491 (7)
	(1)	#	11,067				3,031 (6)
Avg./Institution	(1)	$	1,105				9,569 (6)
Overall Avg./Loan		$					4,403 (6)
Average Net Loans Receivable	(6)		$609,239,200	167,370,000	320,467,500	333,711,533	87,946,593 (29)
Quarterly Originations Outstandings	(6)	%	72.0	17.0	29.0	34.3	30.97 (31)

*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

+The number included in the average is shown in parentheses.

Table 1. Continued

			Category: $50-$125 Million in Second Mortgages Outstanding Total - 6 Responses*				Full Sample
			High	Low	Median**	Average	Overall Average
Year-end Net Outstandings	(6)	$	107,675,000	52,890,000	61,299,000	67,968,333	92,301,530
Owned	(6)	#	39,457	4,283	8,239	13,212	30,320
Avg./Institution	(6)	$	14,935	2,729	6,482	7,456	7,496
Overall Avg./Loan	(6)	$				5,144	3,135
Serviced Only	(1)	$	26,769,000				16,180,550
	(1)	#	2,279				2,104
Avg./Institution	(1)	$	11,746				8,838
Overall Avg./Loan		$					7,689
Amt. Originated	(6)	$	66,461,000	28,910,000	46,853,500	47,223,500	66,616,912
	(6)	#	26,726	2,789	4,650	8,682	21,245
Avg./Institution	(6)	$	16,266	2,240	8,234	8,780	9,697
Overall Avg./Loan	(6)	$				5,439	3,225
Amt. Purchased	(0)	$					4,105,767
		#					1,372
Avg./Institution		$					6,723
Overall Avg./Loan		$					2,690
Amt. Sold	(1)	$	28,800,000				11,621,491
	(1)	#	2,382				3,031
Avg./Institution	(1)	$	12,091				9,569
Overall Avg./Loan		$					4,403
Average Net Loans Receivable	(4)	$	101,118,000	47,569,000	48,944,500	65,562,250	87,946,593
Quarterly Originations Outstandings	(6)	%	40.0	14.0	18.5	20.23	30.97

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*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table 1. Continued

Category: $20-$45 Million in Second Mortgages Outstanding Total - 9 Responses*							Full Sample
			High	Low	Median**	Average	Overall Average
Year-end Net Outstandings	(9)	$	43,987,000	23,939,000	34,800,000	32,473,556	92,301,530
Owned	(9)	#	31,999	1,765	3,538	7,900	30,320
Avg./Institution	(9)	$	24,922	1,187	7,787	8,595	7,496
Overall Avg./Loan	(9)	$				4,110	3,135
Serviced Only	(2)	$	11,121,200	8,019,000		9,570,100	16,180,550
	(2)	#	2,846	850		1,848	2,104
Avg./Institution	(2)	$	13,084	2,818		7,951	8,838
Overall Avg./Loan	(2)	$				5,179	7,689
Amt. Originated	(9)	$	40,246,000	2,369,000	19,977,000	21,059,000	66,616,912
	(9)	#	30,850	132	1,900	4,957	21,245
Avg./Institution	(9)	$	27,589	1,305	10,578	11,860	9,697
Overall Avg./Loan	(9)	$				4,248	3,225
Amt. Purchased	(6)	$	23,995,000	127,200	1,454,500	4,958,700	4,105,767
	(6)	#	4,998	5	1,054	1,493	1,372
Avg./Institution	(5)	$	25,440	875	3,824	8,118	6,732
Overall Avg./Loan	(6)	$				3,321	2,690
Amt. Sold	(2)	$	11,121,200	7,284,000		9,202,600	11,621,491
	(2)	#	2,189	850		1,520	3,031
Avg./Institution	(2)	$	13,084	3,328		8,206	9,569
Overall Avg./Loan	(2)	$				6,056	4,403
Average Net Loans Receivable	(8)	$	38,078,000	14,439,000	26,989,500	26,875,500	87,946,593
Quarterly Originations Outstandings	(8)	%	66.0	2.7	21.5	23.67	30.97

[*] The number of useful responses to each survey item is shown in parerthese by the item.

[**] For an even number of responses, the median is the average of the middle two.

Table 1. Continued

Category: $5-$15 Million in Second Mortgage Outstandings Total - 9 Responses*							Full Sample
			High	Low	Median**	Average	Overall Average
Year-end Net Outstandings	(9)	$	13,773,000	5,869,000	7,054,000	8,603,989	92,301,530
Owned	(8)	#	2,177	444	1,084	1,092	30,320
Avg./Institution	(8)	$	14,000	4,734	7,919	8,805	7,496
Overall Avg./Loan	(8)	$				7,286	3,135
Serviced Only		$					16,180,550
	(0)	#					2,104
Avg./Institution		$					8,838
Overall Avg./Loan		$					7,689
Amt. Originated	(9)	$	8,523,000	2,405,000	5,685,000	5,414,663	66,616,912
	(8)	#	1,359	182	615	635	21,245
Avg./Institution	(8)	$	16,867	6,272	9,505	10,551	9,697
Overall Avg./Loan	(8)	$				9,060	3,225
Amt. Purchased	(3)	$	11,007,000	364,000	2,405,000	4,615,333	4,105,767
	(2)	#	182	39		111	1,372
Avg./Institution	(2)	$	13,214	9,333		11,274	6,723
Overall Avg./Loan	(2)	$				12,529	2,690
Amt. Sold		$					11,621,491
	(0)	#					3,031
Avg./Institution		$					9,569
Overall Avg./Loan		$					4,403
Average Net Loan Receivable	(5)	$	9,632,000	3,580,000	6,798,000	6,971,400	87,946,593
Quarter Originations Outstandings	(8)	%	32.0	13.0	19.5	20.69	30.97

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*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table 1. Continued

Category: $0-$5 Million in Second Mortgage Outstandings Total - 8 Responses*							Full Sample
			High	Low	Median**	Average	Overall Average
Year-end Net Outstandings	(8)	$	4,908,000	682,000	1,920,204	2,572,051	92,301,530
Owned	(8)	#	3,280	61	239	825	30,320
Avg./Institution	(8)	$	11,689	1,118	7,807	7,285	7,496
Overall Avg./Loan	(8)	$				3,119	3,135
Serviced Only	(1)	$	18,813,000				16,180,550
	(1)	#	2,442				2,104
Avg./Institution	(1)	$	7,704				8,838
Overall Avg./Loan		$					7,689
Amt. Originated	(8)	$	5,282,789	295,000	3,025,000	3,679,599	66,616,912
	(8)	#	3,195	16	369	739	21,245
Avg./Institution	(8)	$	18,438	1,278	10,280	9,773	9,697
Overall Avg./Loan	(8)	$				4,977	3,225
Amt. Purchased		$					4,105,767
	(0)	#					1,372
Avg./Institution		$					6,723
Overall Avg./Loan		$					2,690
Amt. Sold	(2)	$	11,236,000	9,133,241		10,184,621	11,621,491
	(2)	#	1,127	512		820	3,031
Avg./Institution	(2)	$	17,838	9,970		13,904	9,569
Overall Avg./Loan	(2)	$				12,428	4,403
Average Net Loans Receivable	(6)	$	23,092,000	941,000	2,852,797	6,015,266	87,946,593
Quarterly Originations Outstandings	(3)	$	20.0	13.0	13.7	14.50	30.97

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**For an even number of responses, the median is the average of the middle two.

Table II. Operating Statistics

		Size: Year End Oustandings $199 Million or Over Total - 9 Responses*				Full Sample
		High	Low	Median**	Average	Overall Average
Avg. Borrowings	(4)	$385,896,000	187,327,000	252,775,500	269,693,500	64,063,023 (24)
as % of Avg. Receivables	(4)	% 105.0	76.0	85.0	88.02	88.66 (18)
as % of Avg. Equity	(4)	5.75	2.84	4.66	3.69	3.88 (21)
Int. Expense	(4)	$ 32,354,000	12,255,000	19,926,500	21,115,500	4,755,986 (26)
as % of Avg. Borrowings	(6)	% 8.4	5.2	7.0	7.83	7.96 (26)
Int. Income	(3)	$ 92,952,000	3,917,000	33,903,000	43,590,667	7,479,805 (26)
as % of Avg. Equity	(3)	% 112.0	10.2	58.8	63.8	61.11 (22)
as % of Avg. Receivables	(3)	% 25.2	1.8	11.9	15.0	14.8 (16)
Pretax Income as % of Avg. Receivables	(3)	% 6.1	1.0	1.7	3.4	3.6 (18)
as % of Interest Income	(5)	% 55.1	12.2	17.4	17.0	17.8 (20)

[*] The number of useful responses to each survey item is shown in parentheses by the item.

[**] For an even number of responses, the median is the average of the middle two.

[*] The number included in the average is shown in parentheses.

Table II. Continued

		Category: $50-$125 Million in Second Mortgage Outstandings Total - 6 Responses*				Full Sample
		High	Low	Median**	Average	Overall Average
Avg. Borrowings	(5)	$ 77,930,000	38,500,000	53,317,000	56,527,400	64,063,023
as % of Avg. Receivables	(4)	% 142.0	77.0	82.5	91.1	88.66
as % of Avg. Equity	(5)	20.95	2.78	6.10	5.11	3.88
Int. Expense	(5)	$ 7,352,000	3,567,000	3,911,000	4,553,000	4,755,986
as % of Avg. Borrowings	(5)	% 10.2	4.0	7.9	8.05	7.96
Int. Income	(5)	$ 11,652,000	451,000	7,773,000	7,298,400	7,479,805
as % of Avg. Equity	(5)	% 391.0	7.1	74.0	65.95	61.11
as % of Avg. Receivables	(5)	% 18.1	11.5	11.9	13.2	14.8
Pretax Income as % of Avg. Receivables	(3)	% 5.3	2.9	4.5	4.2	3.6
as % of Interest Income	(3)	% 39.1	24.1	29.2	31.9	17.8

*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table II. Continued

		Category: $20-$45 Million in Second Mortgage Outstandings Total - 9 Responses*				Full Sample
		High	Low	Median**	Average	Overall Average
Avg. Borrowings	(6)	$ 33,052,000	1,303,700	27,003,000	23,598,783	64,063,023
as % of Avg. Receivables	(5)	% 100.0	70.7	91.2	88.28	88.66
as % of Avg. Equity	(3)	% 11.36	2.91	6.58	5.14	3.88
Int. Expense	(6)	$ 2,498,731	183,405	2,449,500	1,630,689	4,795,986
as % of Avg. Borrowings	(6)	% 14.0	7.56	8.65	8.65	7.96
Int. Income	(6)	$ 5,520,000	305,000	4,718,476	3,464,806	7,479,805
as % of Avg. Equity	(3)	110.0	7.7	15.2	40.98	61.11
as % of Avg. Receivables	(3)	% 16.7	14.5	15.3	15.4	14.8
Pretax Income as % of Avg. Receivables	(5)	% 5.6	2.2	5.0	4.4	3.6
as % of Interest Income	(4)	% 34.5	11.6	17.9	21.0	17.8

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*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table II. Continued

			Category: $5-$15 Million in Second Mortgage Outstandings Total - 9 Responses*				Full Sample
			High	Low	Median**	Average	Overall Average
Avg. Borrowings	(5)	$	9,557,200	2,087,000	5,244,000	5,861,925	64,063,023
as % of Avg. Receivables	(3)	%	106.0	76.0	77.0	89.06	88.66
as % of Avg. Equity	(5)		3.51	1.00	3.10	2.71	3.88
Int. Expense	(6)	$	880,000	118,000	542,000	501,580	4,755,986
as % of Avg. Borrowings	(5)	%	9.7	2.6	9.2	8.24	7.96
Int. Income	(5)	$	1,630,195	51,000	430,000	672,439	7,479,805
as % of Avg. Equity	(5)	%	74.8	3.5	20.7	36.27	61.11
as % of Avg. Receivables	(3)	%	18.2	.8	17.1	13.2	14.8
Pretax Income as % of Avg. Receivables	(4)		15.7	-24.2	6.1	.2	3.6
as of Interest Income	(3)	%	48.9	4.4	21.1	28.9	17.8

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*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table II. Continued

			Category: $0-$5 Million in Second Mortgage Outstandings				Full Sample
			Total - 8 Responses*				
			High	Low	Median**	Average	Overall Average
Avg. Borrowings	(4)	$	3,056,000	300,000	2,447,834	2,062,917	64,063,023
as % of Avg. Receivables	(2)	%	92.0	81.8		86.90	88.66
as % of Avg. Equity	(4)	%	6.37	.439	1.23	1.03	3.88
Int. Expense	(5)	$	365,000	38,269	249,768	233,407	4,755,986
as % of Avg. Borrowings	(4)	%	12.8	8.1	10.2	9.72	7.96
Int. Income	(7)	$	899,000	83,000	230,000	437,128	7,479,805
as % of Avg. Equity	(6)	%	269.0	1.20	107.5	31.21	61.11
as % of Avg. Receivables	(4)	%	38.9	13.1	21.2	22.9	14.8
Pretax Income as % of Avg. Receivables	(3)	%	7.1	2.1	2.2	3.6	3.6
as % of Interest Income	(5)	%	29.2	8.0	17.9	14.4	17.8

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*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table III. New Loan Composition and Terms in the Last Quarter

Category: $199 Million or Over in Year-end Outstandings Total - 9 Responses*							Full Sample
			High	Low	Median**	Average	Overall Average +
Household, #	(4)	#	98,582	6,913	22,407	36,327	6,152 (28)
% of total loans	(4)	%	100.00	100.00	100.00	100.00	99.01 (29)
$ volume	(4)	$	303,889,000	36,807,000	124,062,500	147,205,250	26,550,750 (28)
% of total volume	(4)	%	100.00	100.00	100.00	100.00	97.0 (27)
Avg./Institution	(4)	$	11,933	1,301	7,102	6,859	9,499 (27)
Overall Avg.	(4)	$				4,052	4,239 (27)
Other Purposes, #		#					215 (8)++
% of total loans		%					0.99 (8)++
$ volume	(0)	$					3,496,000 (7)
% of $ volume		%					3.0 (7)
Avg./Institution		$					35,709 (7)
Overall Avg.		$					15,384 (7)
Total, #	(6)	#	107,642	6,913	22,407	43,575	9,358 (31)
$ volume	(7)	$	303,889,000	36,807,000	121,789,000	133,639,143	34,669,969 (32)
Avg./Institution	(6)	$	11,933	1,197	7,101	6,708	11,375 (30)
Overall Avg.	(6)	$				3,122	3,255 (30)
Loan Terms on Consumer Loans							
Avg. Maturity	(7)	mos.	114	36	52	70.1	74.9 (32)
Avg. Ratio Loan/Appraised Equity	(5)	%	85.00	78.00	80.00	81.60	77.3 (27)

[*] The number of useful responses to each survey item is shown in parentheses by the item.

[**] For an even number of responses, the median is the average of the middle two.

[+] The number included in the average is shown in parentheses.

[++] For the 8 respondents who originated loans for other than consumer purposes, the # of loans averaged 9.4% of their total portfolio. The $ volume reported by 7 of these respondents averaged 25% of their portfolios.

Table III. Continued

Category: $50-$125 Million in Second Mortgage Outstandings							Full Sample
Total - 6 Responses*			High	Low	Median**	Average	Overall Average
Household, #	(6)	#	6,252	628	1,028	2,009	6,152
% of total loans	(6)	%	100.00	72.00	89.8	88.83	99.01
$ volume	(6)	$	18,408,000	7,691,000	10,036,000	10,865,167	26,055,750
% of total volume	(6)	%	100.00	40.7	81.4	74.16	97.0
Avg./Institution	(6)	$	16,479	1,230	10,198	9,845	9,499
Overall Avg.	(6)	$				5,409	4,239
Other Purposes, #	(5)	#	817	97	239	303	215
% of total loans	(5)	%	28	7.3	11.6	11.89	0.99
$ volume	(5)	$	11,201,000	789,000	4,024,000	4,543,600	3,496,000
% of total volume	(5)	%	59.3	7.4	21.8	29.25	3.0
Avg./Institution	(5)	$	21,423	8,134	13,710	14,636	35,709
Overall Avg.	(5)	$				14,995	15,384
Total, #	(6)	#	7,069	759	1,100	2,261	9,358
$ volume	(6)	$	23,528,000	10,232,000	12,501,000	14,651,500	34,669,969
Avg./Institution	(6)	$	16,483	2,673	10,536	10,290	11,375
Overall Avg.	(6)	$				6,480	3,255
Loan Terms on Consumer Loans							
Avg. Maturity	(4)	mos.	127	56	103	97.25	74.9
Avg. Ratio Loan/Appraised Equity	(4)	%	100.00	80.00	82.5	86.5	77.3

*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table III. Continued

Category: $20-$45 Million in Second Mortgages Outstandings Total - 9 Responses*							Full Sample
			High	Low	Median**	Average	Overall Average
Household, #	(8)	#	7,747	18	484	1,641	6.152
% of total loans	(8)	%	100	75.6	100	98.50	99.01
$ volume	(7)	$	20,161,000	247,000	6,240,000	8,095,407	26,055,750
% of total volume	(7)	%	100	23.8	100	95.71	97.0
Avg./Institution	(7)	$	17,517	1,420	11,408	10,308	9,499
Overall Avg.	(7)	$				4,393	4,239
Other Purposes, #	(3)	#	122	5	73	67	215
% of total loans	(3)	%	24.4	4	21.7	5.93	0.99
$ volume	(2)	$	1,730,000	813,000		1,271,500	3,496,000
% of total volume	(2)	%	76.7	7.9		11.08	3.0
Avg./Institution	(2)	$	162,600	14,180		88,390	35,709
Overall Avg.	(2)	$				20,024	15,384
Total, #	(8)	#	7,747	23	484	1,666	9,358
$ volume	(8)		$21,891,000	1,060,000	6,807,425	8,396,856	34,669,969
Avg./Institution	(8)	$	46,087	1,420	12,729	16,431	11,375
Overall Avg.	(8)	$				5,041	3,255
Loan Terms on Consumer Loans							
Avg. Maturity	(8)	mos.	82.2	33	48	53.15	74.9
Avg. Ratio Loan/Appraised Equity	(6)	%	80	63.3	77.5	75.7	77.3

*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table III. Continued

			Category: $5-$15 Million in Second Mortgages Outstandings Total - 9 Responses*				Full Sample
			High	Low	Median**	Average	Overall Average
Household, #	(7)	#	354	71	138	170	6,152
% of total loans	(8)	%	100.00	100.00	100.00	100.00	99.01
$ volume	(8)	$	2,696,000	910,000	1,891,500	1,821,770	26,055,750
% of total volume	(8)	%	100.00	100.00	100.00	100.00	97.0
Avg./Institution	(7)	$	16,139	5,912	10,291	11,380	9,499
Overall Avg.	(7)	$				9,982	4,239
Other Purposes, #		#					215
% of total loans		%					0.99
$ volume	(0)	$					3,496,000
% of total volume		%					3.0
Avg./Institution		$					35,709
Overall Avg.		$					15,384
Total, #	(7)	#	354	71	138	170	9,358
$ volume	(8)	$	2,696,000	910,000	1,891,500	1,821,770	34,669,969
Avg./Institution	(7)	$	16,139	5,912	10,291	11,380	11,375
Overall Avg.	(7)	$				9,982	3,255
Loan Terms on Consumer Loans							
Avg. Maturity	(7)	mos.	150	61.1	84	93.5	74.9
Avg. Ratio Loan/Appraised Equity	(6)	%	85	60	77.5	75.5	77.3

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[*] The number of useful responses to each survey item is shown in parentheses by the item.

[**] For an even number of responses, the median is the average of the middle two.

Table III. Continued

			Category: $0-$5 Million in Second Mortgages Outstanding Total - 8 Responses*				Full Sample
			High	Low	Median**	Average	Overall Average
Household, #	(4)	#	280	24	140	146	6,152
% of total loans	(5)	%	100.00	100.00	100.00	100.00	99.01
$ volume	(3)	$	3,059,000	248,000	1,000,000	1,435,667	26,055,750
% of total volume	(5)	%	100.00	100.00	100.00	100.00	97.0
Avg./Institution	(3)	$	10,925	6,897	10,333	9,385	9,499
Overall Avg.	(3)	$				9,592	4,239
Other Purposes, #		#					215
% of total loans		%					0.99
$ volume		$					3,496,000
% of total volume		%					3.0
Avg./Institution		$					35,709
Overall Avg.		$					15,389
Total, #	(4)	#	280	24	140	146	9,358
$ volume	(3)	$	3,059,000	248,000	1,000,000	1,435,667	34,669,969
Avg./Institution	(3)	$	10,925	6,897	10,333	9,385	11,375
Overall Avg.	(3)	$				9,592	3,255
Loan Terms on Consumer Loans							
Avg. Maturity	(6)	mos.	92	57	72	78.8	74.9
Avg. Ratio Loan/Appraised Equity	(6)	%	87	50	75	71	77.3

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*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

Table IV. Delinquencies and Charge-offs

		Category: $0-$5 Million in Second Mortgages Outstandings Total - 8 Responses*								Full Sample	
		High		Low		Median**		Average		Overall Average	
		No.	$	No.	$	No.	$	No.++	$	No.++	$
Current and < 60 days	(5)	99.76	99.72	85.09	89.20	94.78	95.63	93.04	95.47	92.96(32)	98.08(34)
60-89 days	(5)	3.87	3.06	0	0	2.0	.94	1.63	1.29	1.97(31)	.60(33)
90 + days	(5)	11.98	7.74	.24	.28	3.10	2.44	5.33	3.25	5.06(31)	1.27(33)
60 + days	(5)	14.91	10.80	.24	.28	5.22	4.37	6.96	4.53	7.04(32)	1.91(34)
Total Unpaid Net Balances over 60 days	(5)	33,771,632		1,604,064		15,169.198		15,165,763		2,527,734	(34)
Charge Offs as % of Average Receivables	(5)	3.44%		.23%		1.24%		.855%		.76%	(26)
Recoveries as % of Avg. Receivables	(3)	.62%		.285%		.29%		.37%		.3%	(24)
Reserve for Losses--% of Year End Receivables	(4)	3.99%		2.27%		3.47%		3.24%		2.58%	(34)

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[*] The number of useful responses to each survey item is shown in parentheses by the item.

[**] For an even number of responses, the median is the average of the middle two.

[++] The average # of the delinquent loans is a weighted average/outstanding loans. In contrast, the $ amount of delinquencies is a nonweighted average of the amounts reported by each institution.

Table IV. Continued

		Category: $5-$15 Million in Second Mortgages Outstandings								Full Sample	
		Total - 9 Responses*									
		High		Low		Median**		Average		Overall Average	
		No.	$	No.	$	No.	$	No.++	$	No.++	$
Current and < 60 days	(6)	100.00	100.00	89.3	93.89	98.0	98.3	93.62	97.46	92.96	98.08
60-89 days	(6)	3.0	2.14	0	0	.68	.23	1.84	.73	1.97	.60
90 + days	(6)	7.8	3.97	0	0	1.72	1.61	4.54	1.81	5.06	1.27
60 + days	(6)	10.7	6.11	0	0	1.9	1.70	6.38	2.49	7.04	1.91
Total Unpaid Net Balances Over 60 days	(6)	285,741		0		55,633		97,871		2,527,734	
Charge Offs as % of Avg. Receivables	(4)	2.11%		.04%		.475%		.80%		.76%	
Recoveries as % of Avg. Receivables	(4)	.66%		0%		.26%		.40%		.3%	
Reserve for Losses--% of Year End Receivables	(7)	4.33%		.02%		1.27%		.19%		2.58%	

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*The number of useful responses to each survey item is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

++The average # of delinquent loans is a weighted average/outstanding loans. In contrast, the $ amount of delinquencies is a nonweighted average of the amounts reported by each institution.

Table IV. Continued

		Category: $20-$45 Million in Second Mortgages Outstandings Total - 9 Responses*								Full Sample	
		High		Low		Median**		Average		Overall Average	
		No.	$	No.	$	No.	$	No.++	$	No.++	$
Current and < 60 days	(8)	99.23	99.73	90.32	96.63	97.92	98.27	95.43	98.13	92.96	98.08
60-89 days	(7)	3.2	1.76	0	0	.55	.43	1.22	.59	1.97	.60
90 + days	(7)	6.48	2.83	.34	.13	.92	.815	2.81	1.07	5.06	1.27
60 + days	(8)	9.68	3.37	.77	.27	2.08	1.79	4.57	1.87	7.04	1.91
Total Unpaid Net Balances over 60 days	(8)	1,376,530		172,982		669,930		744,066		2,527,734	
Charge Offs as % of Avg. Receivables	(8)	2.35%		0%		.19%		.64%		.76%	
Recoveries as % of Avg. Receivables	(8)	.91%		0%		.04%		.22%		.3%	
Reserve for Losses--% of Year End Receivables	(9)	3.36%		0%		1.66%		1.56%		2.58%	

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[*] The number of useful responses to each survey item is shown in parentheses by the item.

[**] For an even number of responses, the median is the average of the middle two.

[++] The average # of delinquent loans is a weighted average/outstanding loans. In contrast, the $ amount of delinquencies is a nonweighted average of the amounts reported by each institution.

Table IV. Continued

		Category: $50-$125 Million in Second Mortgages Outstandings Total - 6 Responses*								Full Sample	
		High		Low		Median**		Average		Overall Average	
		No.	$	No.	$	No.	$	No.++	$	No.++	$
Current and < 60 days	(6)	99.93	99.90	98.65	98.78	99.65	99.66	99.18	99.56	92.96	98.08
60-89 days	(6)	.37	.27	.02	.01	.19	.18	.26	.15	1.97	.60
90 + days	(6)	.98	.95	0	0	.20	.21	.56	.28	5.06	1.27
60 + days	(6)	1.35	1.22	.07	.1	.30	.36	.82	.43	7.04	1.91
Total Unpaid Net Balances over 60 days	(6)	1,560,052		53,000		234,815		440,108		2,527,734	
Charge Offs as % of Avg. Receivables	(4)	.47%		.1%		.185%		.27%		.76%	
Recoveries as % of Avg. Receivables	(4)	.27%		.006%		.15%		.14%		.3%	
Reserve for Losses-% of Year End Receivables	(5)	1.2%		.27%		1.00%		.80%		2.58%	

*The number of useful responses to each survey is shown in parentheses by the item.

**For an even number of responses, the median is the average of the middle two.

++The average # of delinquent loans is a weighted average/outstanding loans. In contrast, the $ amount of delinquencies is a nonweighted average of the amounts reported by each institution.

Table IV. Continued

		Category: $199 Million and Over in Second Mortgage Outstandings								Full Sample	
		Total - 9 Responses*									
		High		Low		Median**		Average		Overall Average	
		No.	$	No.	$	No.	$	No.++	$	No.++	$
Current and < 60 days	(9)	100.00	100.00	96.1	96.59	99.1	99.43	98.27(7)	98.92	92.96	98.08
60-89	(9)	2.52	1.69	0	0	.26	.23	.93(7)	.43	1.97	.60
90 + days	(9)	1.38	3.4	0	0	.38	.45	.80(7)	.64	5.06	1.27
60 + days	(9)	3.90	3.41	0	0	.66	.57	1.73(7)	1.07	7.04	1.91
Total Unpaid Net Balances over 60 days	(9)	269,419		0		51,099		103,748		2,527,734	
Charge Offs as % of Average Receivables	(5)	.38%		0%		.05%		.12%		.76%	
Recoveries as % of Avg. Receivables	(5)	.01%		0%		0%		.004%		.3%	
Reserve for Losses % of Year End Receivables	(9)	4.8%		.56%		1.57%		1.76%		2.58%	

[*] The number of useful responses to each survey is shown in parentheses by the item.

[**] For an even number of responses, the median is the average of the middle two.

[++] The average # of delinquent loans is a weighted average/outstanding loans. In contrast, the $ amount of delinquencies is a nonweighted average of the amounts reported by each institution.

APPENDIX

The survey form used to obtain the data summarized in this paper is presented as Exhibit 1. A number of improvements can be made in the survey that would make it more useful in future years.

Our first suggestion is that, while confidentiality should be maintained, boxes should be included in which each survey respondent could indicate whether it was a commerical bank, commercial bank holding company affiliate, mortgage banking company, finance company, or other type of financial institution. This would allow data to be clustered by similar type of institution and would eliminate some disparities that we found in reported costs of funds and leverage ratios. The survey data would probably be more useful to respondents in analyzing their own operations if they could compare their operations more directly to the operations of similar institutions.

Second, it would be most useful if every item of information that related to dollar figures applied only to the principal balances of loans outstanding. If the information did not apply to the prinicpal balance of loan outstandings, but also included unearned finance charges, a box should be provided for respondents to check. They could then indicate the approximate percentage or dollar amounts of unearned finance charges included in the balance reported. If this were done, better pro rata adjustments could be made to eliminate the effect of the inclusion of unearned finance charges in some of the outstanding balance figures.

Third, it should be emphasized throughout the questionnaire that the requested information applies only to the second mortgage loan portion of each lender's portfolio. this is especially true with respect to operating statistics. If information appropriate to the second mortgage loan portion of the portfolio cannot be provided, overall operating statistics should be provided. However, provision should be made for providing prorated figures, so that overall interest expenses and income, etc., can be allocated appropriately to the second mortgage loan portion of the lender's portfolio.

Fourth, changes need to be made in some of the definitions used in the survey form. The request for "average income" was confusing. Instead, the respondents should have been requested to provide their total gross income for their last fiscal year. Also, they should have been asked to report average 12-month receivables figures for the same fiscal year for which they reported year-end outstandings. Finally, the average net loan receivables figure should have been defined as being equal to the sum of total net receivables outstanding at the end of each reporting month, divided by the number of reporting months included in the last fiscal year. This needs to be emphasized on all surveys.

Finally, data on loan extensions would be more useful if they were reported net of refinancing, as they would more closely reflect true cash flows and growth rates. Further, data on refinancings may be of considerable interest in their own right. They can be used to answer questions regarding the rate of turnover of second mortgage portfolios and indicate whether such mortgages are more frequently being used to provide households with short-term as opposed to long-term financing.

1979 Questionnaire

NATIONAL SECOND MORTGAGE ASSOCIATION
in cooperation with
CREDIT RESEARCH CENTER, PURDUE UNIVERSITY

FINANCIAL QUESTIONNAIRE

Identifying number of firm:
(Assigned by NSMA) ____ ___ ___ ____

This questionnaire applies to entities engaged in marking loans secured **principally** by junior liens on real property.

Complete questionnaire and send in the enclosed, self-addressed envelope **by** to:

Dr. Richard L. Peterson
Senior Research Associate
Credit Research Center
Krannert Graduate School of Management
Purdue University
West Lafayette, Indiana 47907

The responses to the questionnaires will be summarized by the staff of the **Credit** Research Center under the direction of Dr. Peterson and will remain **confidential**. Results will be reported to participants in a composit format.

Any questions regarding the completion of this questionnaire should be **directed** to Dr. Peterson at the above address or by telephone (317) 494-6173.

QUESTIONNAIRE

Instructions

1. Show dollar figures to the nearest $1,000.
2. See definitions at the end of the questionnaire.

The following information is for the fiscal year ended ____________
(specify date)

I. Volume indicators

	Number	Amount $(-000)
1. Net loans receivable outstanding and owned at end of fiscal year shown above		
2. Net loans receivable outstanding at end of fiscal year that are serviced, but not owned		
3. Volume of loans originated during the preceding 12 months		
4. Volume of loans purchased during the preceding 12 months		
5. Volume of loans sold to other than affiliated company during the preceding 12 months		
6. Average net loans receivable	X X X X X	

II. Contractual Delinquencies and charge-offs

7. Contractual Analysis (Based on terms in effect at statement date and applicable to precompute, add-on, discount, and interest bearing accounts)

	Number	Unpaid Balances	% of Related Receivables Outstanding
Accounts current and with instalments past due less than 60 days from due date			
60 - 89 days			
90 - 179 days			
180 to 269 days			
270 days or more			
TOTAL			

	Number	Amount $(-000)
8. What portion of a full payment must be received in order that the payment be recognized as received in making the computation above? If less than 100% of full payment required, would this be true on consecutive payments or limited to just the most recent?		
9. How many consecutive full payments must be received for the purpose of taking an account off the contractual list?		
10. Gross charge-offs during fiscal year	x x x x x	________
11. Recoveries during fiscal year	x x x x x	________
12. Allowance for possible loan losses at end of fiscal year	x x x x x	________

III. Sources of funds and profitability

13. Average borrowings during fiscal year		________
14. Average stockholders' equity during fiscal year		________
15. Interest expense for the fiscal year		________
16. Average fross interest income for the fiscal year		________
17. Income before income taxes for the fiscal year		________

IV. Operating policies

These data should be reported for the quarter ending with the end of the fiscal year shown on the previous page. The data reported should relate to originated loans only, not purchased loans.

18. Number and dollar volume of loans originated for personal, family, or household purposes during quarter.	________	________
19. Number and dollar volume of loans originated for other than consumer purposes	________	________
20. Number and total dollar volume of loans originated during the quarter (should be equal to sum of #18 and #19)		________

21. With respect to consumer loans:

a. Average ratio of loan to appraised equity: ________%

b. Average maturity: ________ months

THANK YOU FOR YOUR COOPERATION. Comments and suggestions for improvement would be welcome.

PUBLICATIONS
CREDIT RESEARCH CENTER

MONOGRAPH No. 1: An Empirical Analysis of Retail Revolving Credit

MONOGRAPH No. 2: Credit Policies and Store Locations in Arkansas Border Cities: Merchant Reactions to a Ten Percent Finance Charge Ceiling

MONOGRAPH No. 3: Research Topics in Mortgage Markets: Proceedings of a Seminar

MONOGRAPH No. 4: An Economic Report on Consumer Lending in Texas

MONOGRAPH No. 5: Mortgage Banking 1963 to 1972: A Financial Intermediary in Transition

MONOGRAPH No. 6: A Thesaurus of Terms in Mortgage and Consumer Credit

MONOGRAPH No. 7: A Bibliography of Consumer Financial Services and Regulation

MONOGRAPH No. 8: A Compilation of Federal and State Laws Regulating Consumer Financial Services

MONOGRAPH No. 10: The Impact of Regulation on the Provision of Consumer Financial Services by Depository Institutions: Research Backgrounds and Needs

MONOGRAPH No. 12: Cost/Benefit Analysis of Creditors' Remedies

MONOGRAPH No. 13: Consumer Perception of Credit Insurance on Retail Purchases

MONOGRAPH No. 14: An Economic Analysis of the "Due On Sale" Clause in the California Mortgage Market

WORKING PAPER No. 1: The Use of Department Store Revolving Credit: Account Use Patterns, Customer Profitability, the Value of Revolving Credit, and the Probable Incidence of Credit Rationing

WORKING PAPER No. 2: EFTS and Consumer Credit (Revised)

WORKING PAPER No. 3: The Impact of General Credit Restraint on Consumer Instalment Credit Flows

WORKING PAPER No. 4: The Effect of Alternative Billing Methods Upon Retail Revolving Credit Yields

WORKING PAPER No. 5: Delinquency Rates on Consumer and Mortgage Debt: Their Determinants and Impact

WORKING PAPER No. 6: Determinants of Commercial Bank Automobile Loan Rates

WORKING PAPER No. 7: Personal Loan Cash Flows at Finance Companies

WORKING PAPER No. 8: Discrimination on the Basis of Sex Under the Equal Credit Opportunity Act

WORKING PAPER No. 9: Competition Between Banks and Finance Companies: A Cross Section Study of Personal Loan Debtors

WORKING PAPER No. 10: Regulatory Influences on Commercial Bank Personal Loan Rates

WORKING PAPER No. 11: Commercial Bank Consumer Loan Refinancings

WORKING PAPER No. 12: The Impact of Restricted Creditors' Remedies on Automobile Finance Companies in Wisconsin

WORKING PAPER No. 13: Changes in Finance Personal Loan Policies Following Enactment of the Wisconsin Consumer Act

WORKING PAPER No. 14: Creditor Remedy Restrictions and Interstate Differences in Personal Loan Rates and Availability: A Supplementary Analysis

WORKING PAPER No. 15: The Impact of Creditors' Remedies on Consumer Loan Charges

WORKING PAPER No. 16: Cost/Benefit Analysis of Minimum Charges on Revolving Credit Accounts

WORKING PAPER No. 17: Occupational and Employment Variations in Commercial Bank Consumer Credit Risk

WORKING PAPER No. 18: Problems in Applying Discriminant Analysis in Credit Scoring Models

WORKING PAPER No. 19: Testing for Sex Discrimination in Commercial Bank Consumer Lending

WORKING PAPER No. 20: Banks' Lending Response to Restricted Creditor Remedies

WORKING PAPER No. 21: Bank and Retail Credit Card Yields Under Alternative Assessment Methods

WORKING PAPER No. 22: An Economic Analysis of Electronic Funds Transfer System: The Theory of Credit Markets

WORKING PAPER No. 24: The Community Re-investment Act of 1977: Its Legislative History and Its Impact on Applications for Changes in Structure Made by Depository Institutions to the Four Federal Financial Supervisory Agencies

WORKING PAPER No. 25: Junior Mortgage Financing and Other Borrowing Against Inflated Housing Equity

WORKING PAPER No. 26: Consumer Perceptions of Credit Bureaus

WORKING PAPER No. 27: Mobile Home Demand and Sources of Financing

WORKING PAPER No. 28: An Investigation of Sex Discrimination of Commercial Banks' Direct Consumer Lending

WORKING PAPER No. 29: The Transfer Implications of Consumer Credit Regulation

WORKING PAPER No. 30: Accelerating Inflation and the Distribution of Household Savings Incentives

WORKING PAPER No. 31: Rates of Return on GNMA Securities: the Cost of Mortgage Funds

WORKING PAPER No. 32: The Response of Commercial Banks to Rate Ceilings and Restrictions on Remedies on Consumer Credit Contracts

WORKING PAPER No. 33: Second Mortgage Survey, 1979

REPRINT No. 1: John J. McConnell, "Evaluation Model Can Maximize Single-Family Servicing Profits," *Mortgage Banker*, March 1975; and "Profit/Loss Evaluation Model Has Varied Applications," *Mortgage Banker*, May 1975 (Out-of-print)

REPRINT No. 2. Robert W. Johnson, "The Rationale For Acquisition of Finance Companies by Bank Holding Companies," *The Banking Law Journal*, April 1975 (Out-of-print)

REPRINT No. 3: William C. Dunkelberg and Robert H. Smiley, "Subsidies in the Use of Revolving Credit," *Money, Credit, and Banking*, November 1975

REPRINT No. 4: Michael S. Long, "Credit Screening System Selection," *Journal of Financial and Quantitative Analysis*, June 1975 (Out-of-print)

REPRINT No. 5: John J. McConnell, "Valuation of a Mortgage Company's Servicing Portfolio," *Journal of Financial and Quantitative Analysis*, September 1976

REPRINT No. 6: Richard L. Peterson, "The Impact of General Credit Restraint of the Supply of Commercial Bank Consumer Instalment Credit," *Money, Credit, and Banking*, November 1976

REPRINT No. 7: John J. McConnell, "Mortgage Company Bids on the GNMA Auction," *Journal of Bank Research*, winter 1977

REPRINT No. 8: Richard L. Peterson, "Factors Affecting the Growth of Bank Credit Card and Check Credit," *The Journal of Finance*, May 1977

REPRINT No. 9: John J. McConnell, "Price Distortions Induced by the Revenue Structure of Federally-Sponsored Mortgage Loan Programs," *Journal of Finance*, September 1977

REPRINT No. 10: James F. Smith, "The Equal Credit Opportunity Act of 1974: A Cost/Benefit Analysis," *The Journal of Finance*, May 1977

REPRINT No. 11: David S. Kidwell and Richard L. Peterson, "A Close Look at Credit Unions," *The Bankers Magazine*, January-February 1978

REPRINT No. 12: Robert W. Johnson, "Pricing of Bank Card Services," *The Journal of Retail Banking*, June 1979

REPRINT No. 13: Richard L. Peterson, "The Costs of Consumer Credit Regulation," *Issues in Bank Regulation*, winter 1979

Credit Research Center

WORKING PAPER NO. 33

Second Mortgage Survey, 1979

ERRATA:

Table IV has some pages mistitled.

1. The Table on page 36 applies to firms with $199 million or more in outstanding second mortgages rather than $0-$5 million.

2. The Table on page 37 applies to firms with $0-$5 million in outstandings rather than $5-$15 million.

3. The Table on page 40 applies to firms with $5-$15 million in outstandings rather than $199 million and over.

Credit Research Center

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